FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

Volume 32—Number 17 | APRIL 23, 1960 | 1 Year $5, 2 Years $8

FEEDSTUFFS *Features This Week*

PRODUCTION: Efficient feed production is part of a completely integrated poultry operation in Idaho. **Page 18.**

DISEASE-FREE PIGS: How a feed man and a veterinarian set up facilities to provide disease-free pigs is discussed on **page 26.**

NUTRITION: A USDA scientist discusses development and use of microbial products in feeds, **page 38;** an article on protein and amino acid nutrition of swine begins on **page 54,** and vitamin A in cattle rations is discussed on **page 58.**

CREDIT: An article on how banks and Production Credit Associations can help feed men solve accounts-receivable problems appears on **page 62.**

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Morrell Buys Two Feed Firms, Sets Up Feed Division

CHICAGO — John Morrell & Co. has announced the purchase of two Iowa feed companies — the Golden Sun Milling Co., Estherville, and Foxbilt, Inc., Des Moines. Along with this information, the establishment of a new feed division was announced by W. W. McCallum, Chicago, president of the meat packing company.

Foxbilt, Inc., was acquired by Morrell through an exchange of stock on April 7. Assets of the Golden Sun Milling Co. and its subsidiary, the Golden Sun Farm Service Co., Fairmont, Minn., were purchased for cash of an undisclosed amount April 14.

Both Foxbilt and Golden Sun products will be marketed under the present trademark identification, Mr. McCallum said.

Management personnel at both Foxbilt and Golden Sun is expected to remain the same, according to the announcement. E. L. Fox, who has

(Turn to MORRELL, page 8)

Daffin, Superior Separator Merge

HOPKINS, MINN.—Daffin Manufacturing Co., Lancaster, Pa., and Superior Separator Co., Hopkins, have merged, and the resulting company will be known as Daffin Corp., according to a joint announcement this week by I. A. Daffin and C. F. Pierson, respective presidents of the two machinery firms.

The company will headquarter in Hopkins, a suburb of Minneapolis.

Production operations will continue at present locations for all divisions, the announcement said. It was indicated that separate national sales organizations will be maintained and that operations are expected to continue at the same locations and without change in personnel.

Mr. Daffin will be chairman of the board of the new corporation and Mr. Pierson will be president and chief executive officer. Mr. Daffin also is chairman of a three-man executive committee which will guide combined operations. Other members are Mr. Pierson and F. P. Watts, Daffin treasurer, who will be financial

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All-Concentrate Cattle Feeding Results Publicized

New impetus has been given to the practice of all-concentrate feeding of beef cattle.

Systems of finishing beef cattle on nothing but concentrates (with no hay or silage—only "built-in" roughage in the grains) are given major attention in an article in the May issue of Farm Journal.

"All-concentrate feeding of beef cattle is making big savings in labor and production costs for farmers in

(Turn to ALL-CONCENTRATE, page 4)

Union Opens Office In N. J. Poultry Area

By Special Correspondent

VINELAND, N.J.—James R. Hoffa's Teamsters Union this week began rolling up its sleeves in preparation to organize southern New Jersey poultrymen—at their invitation—under its banner.

Teamster officials April 21 applied for a union charter for the newly mobilized Vineland farmers as Mr. Hoffa attempts to secure a foothold within the nation's poultry industry.

A meeting is scheduled to be held within three weeks for charter presentation and officer installation.

Anthony Contaldi, administrative assistant to Mr. Hoffa, reported that

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AHI: Disease Control Major Economic Factor

By PAUL L. DITTEMORE
Feedstuffs Staff

WASHINGTON — Prevention and control of diseases that affect livestock and poultry—and the farmer's net income—will have a rapidly increasing importance in commercial agricultural production.

That general thought or idea cropped up in one form or another in several of the addresses presented at the 20th annual meeting of the Animal Health Institute, held at the Shoreham Hotel April 17-19. The experts who gave expression to the economic necessity of disease prevention and control were representative of several different areas of the broad field of commercial agriculture.

Agriculture in the U.S. today continues in its almost explosive change from a way of life (with the family farm as its backbone), to a commercial business in which capital replaces labor and in which competition is an ever-increasing factor.

Narrowing Margins

Two or three of the speakers pointed out that feed grain production affects livestock production, and with the prospect of a continued high level of feed grain production, they predicted that the anticipated population gains in the U.S. would not serve to balance the meat supply in prospect.

Narrowing profit margins from livestock production, it was said, will squeeze more and more small feeders out of business.

The livestock producer, the poultry producer—and the grain producer, too—who still is in business five to ten years from now will be the fellow who experiences the fewest baby pig losses, the fewest calves lost, etc.

And that's where animal and poultry health programs will come into the picture as an integral part of agricultural production. One speaker cited the figure of "$1,500 per year loss on the average Iowa farm because of livestock or poultry disease, much of which could have been prevented."

"Animal Health Means Farm Wealth—A Look Ahead at the 60's" was the general theme of the AHI meeting this year.

Role of Feed Industry

Also pointed out at the meeting was the need for cooperation among the feed industry, suppliers of feed additives and animal health products, and other related interests. At the same time, the challenge of changes in agriculture and the feed industry was noted.

Francis A. Kutish, an agricultural economist at Iowa State University, Ames, was the lead-off speaker. He said that, from the economist's viewpoint, the big problem is to achieve

(Turn to AHI, page 97)

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Walnut Grove Products Announces 22.5% Rise In Sales During 1959

ATLANTIC, IOWA—A 22.5% increase in sales during 1959 over 1958 has been announced by Walnut Grove Products Co., Atlantic.

Speaking before a recent stockholders' meeting, E. A. Kelloway, chairman of the board of directors of the feed supplement firm, said tonnage sales exceeded 127,000 tons, with dollar sales near $18 million. The company's distribution area covers eight Corn Belt states.

"Growth has resulted from a continued emphasis on research, the creation of six new sales divisions, the addition of new personnel in every department, and through expansion and realignment of manufacturing and distribution facilities," Mr. Kelloway said.

"A new automatic plant, fifth to be

(Turn to WALNUT GROVE, page 8)

Delaney Clause Said to 'Threaten Future Progress'

WASHINGTON — The Delaney "cancer" clause in the food additives law is not consistent with the philosophy of the law itself, and will threaten future progress based on research.

This was pointed out at the Animal Health Institute meeting here this week in one of a number of talks which dealt with federal law and regulation of medicated feeds.

Leaders in both agriculture and industry criticized the Delaney clause in particular, and there also was some criticism of the administration of the law. Pointed out, too, were problems in agriculture's public relations, particularly in view of recent "scare" stories.

In addition to industry speakers and others who dealt with the Delaney clause and proposed legislative changes, a Food and Drug Administration official addressed the AHI. He called attention, for one thing, to the earlier proposal by the Secretary of Health, Education and Welfare for a change in the Delaney clause. Under this proposal, the clause would be modified to provide for use of feed additives affected by the clause if

(Turn to THREAT, page 96)

Egg-Type Chick Hatch Still Far Behind 1959 Production

WASHINGTON — Production of egg-type chicks has slipped into a valley that it doesn't seem to be climbing out of. Hatchings continue to lag far behind a year ago, including production in the main hatching months.

Hatchery reports on eggs in incubators April 1 indicate the hatch of egg-type chicks this month will follow a pattern that has prevailed since the outset of the current hatching season.

Egg-type chick output was 38% less in March of this year that it was in the same month last year, the U.S. Department of Agriculture reports. Production of 72,782,000 chicks last month was the lowest for the month since records were started in 1955. The previous low for the month was in March, 1957, when 109,404,000 egg-type chicks were hatched.

The aggregate egg-type chick hatch during the first three months of this

(Turn to CHICK HATCH, page 4)

FEEDSTUFFS®

The Weekly Newspaper for the Feed Industry

Published by THE MILLER PUBLISHING CO.

2501 Wayzata Blvd., Minneapolis, Minn.

Address Mail to: Box 67, Minneapolis 40, Minn.

Telephone FRanklin 4-5200 - All Offices Serviced by Bell System Teletype

EDITORIAL STAFF—George L. Gates, Editor; Roger Bergiund, Managing Editor; John Cipperly, Washington Correspondent; Emmet J. Hoffman, Merchandising Editor; James E. Sharon, James H. Ross, Fred E. Tunks, William A. Bentsin and Jim K. Rutter, Editorial Assistants.

WASHINGTON CORRESPONDENT—John Cipperly, 604 Hibbs Building, Washington, D. C., Telephone, Republic 7-8534.

ADVERTISING STAFF—Wilfred E. Lingren, Advertising Director; Carl R. Vetter, Advertising Department Manager; Bruce A. Kirkpatrick, Advertising Production Manager; Leland C. Hubert, Assistant Advertising Production Manager; R. Dale Swenson, Promotion Manager.

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Correspondence regarding subscriptions, changes of address, etc., should be sent to Circulation Manager, Feedstuffs, Box 67, Minneapolis 40, Minn. Single copies 50¢. Subscription rates: One year $5, two years $8, in the U.S., U.S. possessions, Canada and Pan-America. Add $3 a year for postage to other countries. Readers are urged to give prompt notice of change of address and to anticipate future changes by at least three weeks' advance notice. Ask postman for form 22-S. Feedstuffs accepts subscriptions only through its own offices; no subscription solicitors are employed or recognized. Associated publications: The Northwestern Miller, The American Baker, Milling Production, Croplife, Farm Store Merchandising, Feedlot and Professional Nursing Home. Second-class postage paid at Minneapolis, Minn.

ABC AUDITED PAID CIRCULATION

NEP

The regional circulation of this issue is concentrated in the northwestern states

Top of the Hopper

THE PROGRAM PLANNED for the American Feed Manufacturers Assn. convention May 10-11 is zeroed in on the real problems of the day for the feed manufacturing industry. What could be more on target than these topics: Capital and money management, geographical changes in livestock production and consumer concentrations, demand for quality and uniformity of food products, financial and management status of feeders, feeder margins, size and amount of specialization by farmers and feeders, cutting manufacturing costs?

The speakers who will present these discussions have exceptional stature in the industry, and we predict that feed men who attend the sessions will return to their jobs with a far broader understanding of the vast changes facing their business in the next several years than they had before heading for the convention.

The economics of the feed business get more complicated by the day, and industry men can't readily afford to miss the sort of postgraduate study offered by the "management problems" session at the AFMA.

♥ ♥

AN ANALYSIS OF TURKEY POULT production this spring has convinced some feed men that there will be price troubles ahead for turkeys and serious risk of losses to feed firms which have gone into financing most heavily. Most probable trouble spot is seen in heavy white breeds, many of which are marketed as broilers. The hatchery report shows production of this type up 27% so far this year, with prospects for a further increase indicated by eggs in incubators on April 1. (Production of other heavy breeds is up 30%.)

Most financing this season is on "all three" (protein, grain and poults), but some firms have gone even further into financing of houses and equipment. A few years ago financing of two of the three was the general practice, and some feed men are more than a little concerned about the heavy outlay of capital requirements needed to stay in the turkey feed business these days.

What happened to the predicted shortage of turkey hatching eggs? Apparently the reports in January about limited numbers of breeders were somewhat exaggerated. Also, hatchability this year has been exceptionally good.

THERE CONTINUE to be reports of feed firms getting into feeding operations directly, not just on a contract basis. For example, one midwestern feed manufacturer recently announced formally the establishment of a feeding department. Others have done it without any announcements.

Also, it may be noted that some of the "pilot" or "demonstration" feeding projects of dealers and plant operators are on a pretty large scale. Many of these operations can be and are used effectively to demonstrate possible new enterprises or methods or programs to customers and potential customers. At the same time, some of them put the feed man into the feeding business in a pretty significant way.

♥ ♥

NUMBERS OF CATTLE ON FEED continue to climb, reflecting further optimism about future demand for top quality beef. The increase of 8% as of April 1 could be considered hefty enough but at the same time sufficiently moderate to avoid serious price troubles later on.

Dr. Herrell DeGraff, Cornell University economist, commenting earlier this year on the general cattle outlook, noted that the winter price slump was a good thing for the industry. "It may save the industry millions of dollars by checking a buildup of cattle numbers that otherwise might well have con-

(Turn to TOP OF THE HOPPER, page 92)

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

The pressure on farmers to get their spring field work done stood out this week as the major reason why feed buying has tapered off. Manufacturers and dealers generally say little attention is being given formula feeds by producers because of the rush which has followed a wet beginning for spring. Fields are drying up now, though, and it is believed that before long feeders will settle down and put their feeding needs back on the top of the list. Prices of most manufactured feeds are scheduled to go downward, reflecting drops in the ingredient market. The wholesale feedstuff price index dropped 3 points to 78.6 this week as against 87.8 the comparable week a year earlier. The feed-grain index was down 1.2 points and 67.5 was well below 70.7 for the same week last year. The hog-corn ratio remained steady. Based on Chicago prices, the index was 13.5 this week, the same as the week before, but .8 above a year earlier. (Feed markets in detail on pages 94-96.)

Northwest

Trade representatives reported that this week's feed business was better than last week's, but no more than logically can be expected as growing chicks, hogs and poults increase their appetites.

Chick starter feeds are selling fairly well, but not as well as last year at this time because of flock reductions. There is some thinking that egg producers will up their chick-buying as they see the possibilities of a good to strong egg market this fall. This, of course, would improve chick starter movement.

Turkey starter feeds are moving very well for most manufacturers and the improved hog market has stimulated swine feeding.

Any gains in feed sales that come along this spring will be accepted without fanfare because it's the time of year when manufacturers believe business "should be better." May and June are generally "big" months in this area.

Price dips in most ingredients this week will likely result in slightly lower formula feed prices.

Southwest

Formula feed business remains about unchanged from last week with most plants operating on a slow five-day basis. There was very little evidence that the coming week would bring the improvement that normally prevails during this season.

Dealer price lists on formula feed this week will be somewhat lower, according to some mills, which continues the lower trend prevailing for the last three weeks. Many ingredients are showing the effect of slow feed business. Prices of some ingredients are off sharply with some suppliers becoming concerned about their products backing up.

Some feed men commented that orders early in the week were coming in good and the runs looked good but by mid-week the pace slackened and the week ended with the same slowness as before and a very low backlog of orders into the coming week.

Hog, poultry and turkey business makes up the main picture of the run with dairy feed and laying rations contributing to a lesser extent.

Northeast

Demands for formula feed continued at a relatively low level. And not much change is likely next week unless bran and middlings attract interest in feeds by turning around.

One spokesman thought the downturn could be attributed to fewer unit sales. This area, he said, is steadily losing its markets to other sections of the country. The broiler market has been especially affected by migration.

End products held up during the week, with eggs, broilers and milk holding steady.

Poultry feeds are gaining in tonnage, especially growing, starting and turkey feeds. Dairy feeds still lead in sales, with mixed feeds giving way to complete feeds as the season wanes. Egg mashes ranked second in volume.

Central States

The past week in the central states area found that, by comparison with the same week last month, there was a further continuation in the matter of letdown in demand for formula feeds. Pressure of spring farm work, already greatly delayed, has undoubtedly been one of the items that has to be contended with and probably accounts in part for the less active demand than at this point in March. However, it should be pointed out that the letdown was not sufficiently marked as to bring about any material cut in milling operations on the part of commercial mixers. Everyone seems to be going along on a 40-hour week and following the general pattern for this season of the year.

Another factor is that prices have necessarily been adjusted downward as a reflection of the lower level of quotes for the ingredient feeds and it seems to be the history of the trade that buyers' interest on the part of actual consumers always seems to slough-off when prices weaken in just the same manner that it usually broadens to some extent when prices are on the upswing.

Change in demand noted this week was inclined to be in all lines rather than centering in just one class of feeds.

South Central

Spring field work, delayed in recent weeks by storms and floods, is the number one item on the farm agenda this week. Little attention is being given to formula feeds, apparently this is one item that won't get much attention until plowing is either completed or interrupted by rainy weather.

But there are indications of a fairly good stock of feeds both on the farm and in dealers' hands and there is no great need to rush replacements. Besides, ingredient prices are on the easy side and price lists are likely to be lowered again next week.

Chick starter demand has gained a little more momentum but deliveries so far trail those of last year. April business seems to be off about 10% from a year earlier, but manufacturers expect the gap to be narrowed before the end of the month. Mill running time averages out to a 40-hour week, but output is not always up to usual standards.

(Turn to MARKETS, page 92)

Specialists at Peter Hand evaluate latest scientific developments—even operate a 450-acre farm where new formulations are tested on a commercial scale.

Peter Hand Proven Premix packages contain vitamins, antibiotics, anti-oxidants. One bag fortifies one ton. Available for poultry, swine and ruminants.

Feed manufacturer saves $35,000 a year with Peter Hand Premixes

If there ever was a feed manufacturer who could do his own vitamin pre-mixing, this was the fellow. He was geared for volume and employed experienced mill men.

But he discovered that Peter Hand Premixes are more economical in the long run—for three reasons. First, the specialized personnel and equipment that are needed added to his operating overhead. Second, because his production people were not used to handling micro-ingredients, he found feeds coming off his line dangerously underfortified at some times, expensively overfortified at others. And finally in this particular case, the 2% saving in shrinkage and handling was translated into thousands of dollars over the course of a year.

How much can *you* save by specifying Peter Hand products? That depends on what you make and how much business you do. The man to work out the arithmetic is your Peter Hand representative. Call him in and ask him to show how premium quality Peter Hand Premixes cost less than the do-it-yourself variety.

PETER HAND'S *"RED TAPE"* SAVES YOU TIME, TROUBLE AND MONEY

Peter Hand assays every ingredient used in every product. After samples are taken, containers are sealed with a distinctive red tape. This red tape cannot be removed until the assay verifies quality... your 100% guarantee that Peter Hand premixes, vitamins, fortifiers and medications meet specifications that have been established.

Look for the answer first Peter Hand *from Peter Hand Research*

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Agrozyme Cleared For Cattle Feeds

RAHWAY, N.J.—The chemical division of Merck & Co., Inc., this week announced that the enzyme mixture "Agrozyme" has been cleared by the Food and Drug Administration for use in non-medicated beef cattle rations.

James E. McCabe, director of marketing for agricultural products, said that cattle feeding supplements containing the new growth-stimulating enzyme product will soon be available from feed manufacturers.

Mr. McCabe noted that increased gains with the protein-digesting and starch-digesting enzyme were first reported at Iowa State University in 1959. There, he said, it increased the nutritional value of low-moisture corn, resulting in increased liveweight gains, improved appetite and greater feed consumption, feed saving of 12% per unit of gain, and increased profit margins over feed costs. "Iowa State tests gave a return of $4.28 for each dollar invested in Agrozyme," said Mr. McCabe, "and more recent practical feedlot tests have shown an additional $10.60 profit per steer."

National Broiler Egg Set Edges Up

SALISBURY, MD.—The national egg set for broiler production edged forward last week at a pace 3% over the previous week and 6% over a year ago.

Eighteen of the 22 important broiler producing states set an increased number of eggs. Georgia led with an egg set of 10¼ million. This was a record for that state. March, 1959, was the only other time the state had gone over 10 million for a week's set. Last week's set topped the previous record by 100,000 eggs. A total of 51,819,000 eggs were set nationally.

Other states showing sizeable increases in egg set were Pennsylvania, Indiana, Alabama and Texas.

Broiler chick placements have not had a chance yet to exceed last year's number. Placements in the 22 states totaled 34,754,000. This was slightly above the previous week but 6% less than the same week of 1959. Increases were reported in half of the states. The largest increases occurred in Connecticut, Virginia and Pennsylvania, while Alabama and North Carolina were the only states showing sizeable decreases.

The average price received at the farm in Delmarva for broilers last week was slightly less than the previous week, 17.79¢ compared with 18.1¢ the week before. However, last week's price was improved over the price a year ago which was 16.28¢.

CHICK HATCH

(Continued from page 1)

year was more than a third less than for the same period a year earlier. The 1960 January-March total of 134,805,000 chicks was 37% under the 1959 total of 215,073,000 for January-March, 1959.

Broiler-Type Outlook

The April broiler-type chick hatch outlook indicates an output below that of a year ago, but nothing like the egg-type chick cut. While production of broiler-type chicks by commercial hatcheries during March totaled 175,360,000 — down 4% from March, 1959—an increase of 2% was recorded by USDA in comparing the 496,556,000 chicks hatched January-March, 1960, with the 487,652,000 during this period in 1959.

Eggs in Incubators

USDA's tally of egg-type chicken eggs in incubators April 1 shows that all U.S. regions show substantial reductions compared with a year earlier. The range in declines runs from 17% in New England upward to 39% in the east south central states. For the U.S. as a whole, the decline was 27%.

Most regions show declines, also, in broiler-type eggs in incubators on April 1. The greatest regional decline in the broiler-type incubator count April 1 was 21% in the west north central states. Other reductions: New England, 12%; east north central, 17%; south Atlantic, 4%; east south central, 3%, west south central, 14%, and Pacific, 5%.

Egg-Type Chicks

A state-by-state look at USDA's records of egg-type chicks hatched by commercial hatcheries January through March reveals drastic cuts of up to 60%—many of them around 50%. (See table.)

In Georgia, for example, the egg-type hatch was cut from 7,229,000 in January-March of last year to 2,885,000 this year.

North Carolina is another state in the south Atlantic region with a reduction of 50% or more.

The middle Atlantic state with the greatest egg-type cutback is New Jersey, where some poultrymen have enlisted the Teamsters Union to help them fight low prices. Commercial hatcheries hatched 5,100,000 egg-type chicks January-March this year compared with 10,130,000 in the same period last year.

Many states in the Midwest, the leading egg-producing area, show declines in egg-type chick production of 40% or more.

Differences between states relative to chick production declines in western areas don't appear to be great. Most of them recorded reduction percentages near that reported for their particular region — 32% for west south central and mountain states and 23% for Pacific states.

Egg-Type Chicks Hatched by Commercial Hatcheries

State and division	January-March 1959	January-March 1960*	March 1959	March 1960*
	(000's omitted)			
Maine	1,705	1,235	692	464
N.H.	1,340	670	616	290
Vt.	129	116	53	52
Mass.	4,606	3,416	1,900	1,480
R.I.	136	50	32	28
Conn.	3,769	2,397	1,579	929
N.E.	11,685	7,884	4,872	3,243
N.Y.	5,837	4,470	2,518	1,940
N.J.	10,130	5,100	4,680	2,600
Pa.	13,290	10,099	6,197	4,910
M.A.	29,257	19,669	13,395	9,450
Ohio	10,020	5,900	5,860	3,300
Ind.	11,064	7,877	6,690	4,444
Ill.	11,986	8,553	7,158	4,743
Mich.	4,300	2,710	2,200	1,600
Wis.	4,728	3,103	3,203	2,235
E.N.C.	42,098	28,143	25,111	16,322
Minn.	15,475	7,830	11,500	6,200
Iowa	18,030	9,600	12,450	7,450
Mo.	7,492	3,694	5,469	2,477
N. Dak.	893	274	811	350
S. Dak.	4,449	2,312	3,647	2,000
Neb.	7,485	3,783	4,935	2,679
Kans.	4,077	2,630	2,909	1,800
W.N.C.	57,901	30,295	41,721	22,956
Del.	†	†	†	†
Md.	649	352	342	189
Va.	2,884	1,557	1,521	965
W. Va.	†	†	†	†
N.C.	4,375	2,171	2,207	1,163
S.C.	1,885	1,341	851	594
Ga.	7,229	2,885	2,969	980
Fla.	3,838	3,103	1,457	1,049
S.A.	$21,250	$11,554	$9,599	$5,056
Ky.	1,605	850	1,045	500
Tenn.	3,450	2,400	1,800	1,250
Ala.	2,770	1,329	1,058	494
Miss.	1,993	894	850	385
E.S.C.	9,818	5,473	4,753	2,629
Ark.	1,987	719	668	304
Iowa	1,141	812	498	385
Okla.	2,090	1,665	1,200	1,035
Texas	10,286	6,405	4,557	2,715
W.S.C.	15,504	9,601	6,923	4,439
Mont. & N. Mex.†	675	431	487	295
Idaho	999	566	543	340
Wyo. & Ariz.†	588	433	260	193
Colo.	1,147	722	668	386
Utah	1,052	826	504	400
Nev.	...	...	...	...
Mount.	4,461	2,978	2,482	1,614
Wash.	3,576	2,942	1,611	1,195
Oreg.	1,857	1,397	931	596
Cal.	17,666	14,869	6,638	5,282
Pac.	23,099	19,288	8,980	7,073
U.S.	215,073	134,805	117,836	72,782

* Preliminary. † Combined to avoid disclosing individual operations. ‡ South Atlantic total includes Delaware and West Virginia.

ALL-CONCENTRATE

(Continued from page 1)

all parts of the country," says the national farm magazine.

The publication calls the development the "feeding story of the year."

The Farm Journal and other field reports follow an earlier report from Ralston Purina Co. research workers on experiments conducted in an effort to improve the results on a barley feeding program for beef cattle. (Feedstuffs, Jan. 16.) A company spokesman said, "The experiments have proven that adequately supplemented rolled common barley can readily serve as the sole source of both grain and roughage for fattening cattle." The work also was reported at the last annual meeting of the American Society of Animal Production. (Feedstuffs, Dec. 12.)

"If reasonable care is taken in starting the cattle on this feeding program, and a specially fortified supplement is fed, the results should be most gratifying," the researchers reported.

While this report dealt with barley, the Farm Journal and other recent reports tell of the use of other grains and combinations of grains. A certain amount of "roughage" content in the grain used is said to be required.

Also, said Farm Journal, "you need a fortified supplement to 'balance' the low-quality roughage in barley and oat hulls and in the cobs of ground ear corn."

The recent reports quote Purina specialists and representatives and feeders who have used Purina supplements.

Advantages Listed

Most feeders who have tried all-concentrate feeding, according to Farm Journal, list these advantages for grain with fortified supplement:

"1. Less work. You have less bulk to handle, and with the 'built-in' roughage of barley, oats or ground ear corn, it's practical to self feed.

"2. Faster gains. Not a lot of comparisons have been made, but where they have, range has been from 'fully equal' to '30 to 40%' faster gains.

"3. Cheaper gains. In controlled tests, the advantage has ranged from 5 to 30% in feed bill savings.

"4. Many feed alternatives. You can use any of the common feed grains.

"In all cases, you need a fortified supplement."

The magazine quotes a Peoria County, Illinois, feeder who said he got more than 2.6 lb. of daily gain at a cost of 22.6¢ lb. His steers took 9.07 lb. feed per pound of gain. The ration included rolled oats, ground shelled corn and fortified supplement.

Other rations used by feeders who feed all-concentrate diets are said to include: Rolled barley and fortified supplement; ground ear corn, rolled grain sorghum and supplement; rolled grain sorghum, rolled barley, 7½% cottonseed hulls plus supplement.

The rolled barley and supplement program was reported gaining its greatest popularity in western feedlots; the rolled grain sorghum, rolled barley, cottonseed hulls and supplement ration, in the Southwest.

Supplement Cited

The Farm Journal cited some feeding results which it said "clearly point up the need for a fortified supplement to make up for low-quality roughage in cobs." It said that the difference from cottonseed meal, for example, is "in the vitamins, minerals and 'x' ingredients in the commercial supplement."

The magazine quotes Dr. H. B. Geurin of Purina as saying that the answer to all-concentrate feeding "is in the new fortified supplements." It was indicated that the company tested more than 200 different supplement combinations to find the ones that best make up for nutritional deficiencies in the built-in roughage content of grains.

J. L. Williamson, Purina researcher, was quoted as follows: "Our experience definitely shows that these all-concentrate rations will not work with the 'old' cattle supplements. And in our tests we've learned some processing tricks. The main thing is to prepare the grains in a way that will keep the roughage particles between ¼ in. and ½ in. in size. Rolling or crimping barley or oats, or grinding ear corn through a ½ in. hammermill screen is satisfactory."

It was reported that cattle going on the program should be started on free-choice hay, plus specified amounts of grain and supplement. Grain is increased until the cattle are on full-feed; then feeding of hay is stopped.

Purina researchers said that at least 2 lb. a day of "roughage" (from the grain) is needed to keep the cattle on feed. Crimped or rolled oats is said to contain about 30% average "roughage"; ground ear corn, about 20%; rolled barley, an average of about 15%; ground or cracked shelled corn, none; rolled grain sorghum, none.

Also mentioned by some was the necessity of keeping feed in front of the animals at all times.

In addition to the Farm Journal report, a recent Western Livestock Journal story told of reports by feeders on all-concentrate feeding results, and Purina representatives were quoted and specific mention was made of the use of Purina's "Steer Fatena" supplement.

The earlier Purina report said that a series of six experiments developed the new concept of feeding barley to fattening cattle. Previously, it was stated, limited gains on barley could be attributed to excessive roughage intake from both hay and the hull portion of the barley.

The barley used in the tests was rolled to preserve the roughage characteristic of the hulls; the supplement was a commercial fortified 32% protein supplement fed at the rate of 2 lb. per head per day.

Heavy Breed Turkey Poult Production Remains Ahead of '59; Decline Seen

WASHINGTON — Production of heavy breed turkey poults in March continued to hold well above year earlier levels, the U.S. Department of Agriculture reported, but some decline was seen for April in the bronze type.

Turkey eggs in incubators on April 1 indicate that the number of heavy white-breed poults hatched in April will be larger, but that the number of other heavy poults and the light breed poult hatch will be smaller than in April last year.

As reported earlier, it has been said that fewer breeder hens this year will limit the supply of hatching eggs and poults, but the hatch to date continues well ahead of 1959. Some sources report that hatchability has been better than a year earlier.

The number of heavy white-breed poults produced during March was up 34% from March, 1959. (Some regions, in particular, are showing large percentage increases from 1959. See table for regional details.) Production of other heavy breeds, mostly broad breasted bronze, was up 17%. Heavy white-breed poults totaled 2,640,000, compared with 1,964,000 in March, 1959. Other heavy breed poults totaled 10,900,000, compared with 9,307,000 in March, 1959.

Total light breed poults hatched during March was 958,000, compared with 1,769,000 in March last year—a decrease of 46%.

The number of heavy breed poults

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Announcing a new company!

The Agricultural and Industrial Products Division of Eli Lilly and Company

EFFECTIVE MARCH 15, 1960, BECAME OFFICIALLY KNOWN AS

ELANCO PRODUCTS COMPANY A DIVISION OF ELI LILLY AND COMPANY
POST OFFICE BOX 1750 • INDIANAPOLIS 6, INDIANA

Effective March 15, 1960, the Agricultural and Industrial Products Division of Eli Lilly and Company became officially known as ELANCO PRODUCTS COMPANY. It will operate as a division of Eli Lilly and Company, offering products for use in agriculture, industry and the home.

Since marketing our first product, Stilbosol, in early 1954, this division has shown a steady growth. This change in name in no way changes the management policies and business principles that have made this growth possible. This new organizational structure gives us a broader field in which we may further serve and grow with our customers in their expanding markets.

The Elanco Products Company shall continue to market new products developed for agriculture at the Lilly Agricultural Research Center in Greenfield, Indiana. Elanco will assume the marketing of existing products. New registrations on the part of the feed industry for these products will not be necessary.

These familiar products will now be marketed over our new Elanco signature:

HYGROMIX
(S. hygroscopicus fermentation products, Lilly)
ELANCO

Stilbosol
(diethylstilbestrol premix, Lilly)
ELANCO

Micro-Pen
(special coated procaine penicillin G, Lilly)

Streptomycin Sulfate • **Vitamin B_{12}**

PENB Stages Session for Ideas On Improving Egg Consumption

CHICAGO—What can be done to create better demand for poultry products, particularly eggs, and how can some of the kinks in the production and marketing of these products be straightened out?

Speakers at the 20th annual meeting of the Poultry & Egg National Board gave that question a thorough going over here last week. And here are some of the ideas that came out of the search for answers:

● "Take the lead in selling poultry products through research, education and promotion, or we will turn this job over to some other group."

● Launch a positive program to combat the "cholesterol scare," emphasize research and prepare education, merchandising and point-of-sale materials.

● Sell better nutrition. Point up the importance of well-balanced and adequate diets in promotional activities for food products.

● Try to change the American public's breakfast habits. "Make breakfast, once again, the all-important meal of the day . . . make breakfast easier for the housewife by showing her ways to prepare eggs with less time and trouble."

● Stress the use of poultry and poultry products in the nation's school lunch program.

● Create new egg products that the consumer will welcome.

Product Development

"The need for new product development and consumer education is desperately urgent to avoid total disaster in the egg industry," said R. M. Hendrickson, General Mills, chairman of the steering committee of PENB's new products development committee.

"But new product development is time consuming. It normally takes from three to four years to take a product from the idea state to the supermarket shelf. That is why the new products development committee is working on both short and long range goals. We are attempting to get several laboratory tested products on the market as quickly as possible and we are also encouraging research projects of a long term nature."

Prospective egg products being researched include: Orangegg concentrate, instant scrambled eggs, frozen French toast, hard-cooked eggs and Easter eggs.

"Critical Choice"

It was Ralph J. Thomas, reelected PENB president, who said, "The challenge and opportunity for expanding the market for eggs and poultry meats have never been greater. . . . We have the critical choice of either recognizing 'signals for more sales' and taking the lead in selling our products through research, education, promotion or turning the job over to other 'power groups' who as yet have not recognized basic economics as a fundamental cornerstone of our free enterprise business system."

Mr. Thomas stressed these basic challenges and opportunities in expanding the market for poultry and poultry products:

"Quality: The revolution of 'quality control' will continue to improve poultry products with the greatest improvement in eggs. Larger, more efficient production units will further

(Turn to EGG USE, page 98)

PENB Reelects President Thomas, Honors Canadian

CHICAGO—Ralph J. Thomas, manager, associate hatchery division, DeKalb Agricultural Assn., Sycamore, Ill., was reelected president of the Poultry & Egg National Board at its annual meeting here April 12.

Prof. Earle S. Snyder, Canadian poultry scientist and specialist in the field of poultry products research, was presented PENB's 1959 Research Achievement Award.

Prof. Snyder is the first Canadian to be honored with the PENB award. He is a professor in the department of poultry husbandry, Ontario Agricultural College, University of Toronto, Guelph, Canada.

The Research Achievement Award has been presented annually since 1955 to recognize outstanding achievement in the fields of poultry products technology and marketing and to encourage research toward increased consumption of eggs and poultry meats.

Other Officers

Officers other than Mr. Thomas and members of the PENB executive committee elected are: First vice president, Howard Kauffman, Kauffman Turkey Farm, Waterman, Ill.; second vice president, W. J. Moore, Hy-Lay Hatcheries, Inc., Bryan, Texas; treasurer, Ralston R. Hannas, American Poultry Journal, Chicago, Ill.; Dr. L. A. Wilhelm, Quaker Oats Co., Libertyville, Ill.; Harry Grant, Wirthmore Feeds, Inc., Waltham, Mass.; John R. Hargreaves, Caroline Poultry Farms, Inc., Federalsburg, Md., and L. N. Thompson, Nulaid Farmers' Assn., San Leandro, Cal.

Control of PENB is vested in a board of 36 directors with 15 elected to represent egg interests, six elected

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PENB EXECUTIVE COMMITTEE—Members of the Poultry & Egg National Board executive committee elected at the board of directors meeting during the 1960 PENB annual meeting last week in Chicago are, from left: Sitting—Howard Kauffman, first vice president; Ralph J. Thomas, president; W. J. Moore, second vice president; Standing—John R. Hargreaves, L. N. Thompson and Harry Grant, all members of the executive committee; Dr. L. A. Wilhelm, secretary, and Lloyd H. Geil, general manager. Not shown in the picture is Ralston R. Hannas, treasurer.

Wallerstein Receives Clearance on Enzymes

NEW YORK — Wallerstein Co., New York, a basic producer of industrial enzymes, revealed this week that it has received Food and Drug Administration clearance to produce and sell certain enzyme products for use in non-medicated feeds.

The company cited a ruling that certain enzymes are not food additives within the meaning of the food additives amendment, and it is not necessary to obtain a special order permitting use of the products in non-medicated feeds. Also, a new drug application is not required.

The clearance of Wallerstein enzyme products and certain other enzymes recently resulted from a joint presentation made to FDA by Wallerstein, Rohm & Haas Co. and Miles Chemical Co.

L. A. Chemell No Farmer, Bankrupt, Court Referee Rules

ATLANTA, GA. — A referee in bankruptcy ruled recently that L. A. Chemell is not a farmer, and therefore does not come under that portion of the bankruptcy act that precludes involuntary proceedings.

In a ruling handed down by J. Ellis Mundy, referee in bankruptcy in the U.S. District Court, northern district of Georgia, Gainesville division, it was held that the head of the defunct Chemell hatchery empire is not a farmer in the court's view and "it is adjudged that the said L. A. Chemell is a bankrupt under the act of Congress relating to bankruptcy."

It is understood the decision will be appealed to the U.S. District Court for review.

The decision came after W. F. Cummings, as trustee in bankruptcy, Gainesville Hatchery, Inc., and as trustee of Chemell's, Inc.; Pillsbury Co., and Ralston Purina filed their creditors' petition against Mr. Chemell personally alleging he owed debts in excess of $1,000 and that "he was not a wage earner or farmer and praying that he be adjudged a bankrupt within the purview of the Bankruptcy Act."

Alleges to Be Farmer

The petition added that "the respondent debtor further answering affirmatively alleges that he is a farmer within the meaning of the Bankrupt Act and on account therefore he is not subject to being adjudicated in bankruptcy in an involuntary proceeding."

The referee's finding said that "from all the mass of testimony adduced, including documentary testimony, the referee finds that L. A. Chemell, the debtor, was not on July 23, 1959 (the date in question) an individual personally engaged in farming or tillage of the soil and was not an individual, the principal part of whose income was derived from being personally engaged in the production of poultry or poultry products in their manufactured state as of on or about July 23, 1959.

"It does not appear from evidence that L. A. Chemell owned any farm personally in his own right on the pertinent date. All the birds appear to have been owned by Gainesville Hatchery, Inc., now bankrupt or some other entity . . ."

Ex-Albers President With Bakery Firm

SAN FRANCISCO — Fred W. Hoover, Jr., is now assistant to the president of Langendorf United Bakeries, Inc., with headquarters at San Francisco.

Mr. Hoover resigned recently as president of the Albers Milling Co. and a director of the Carnation Co., after 22 years with Albers (Feedstuffs, April 9).

Rohm & Haas Notes Enzymes Cleared

PHILADELPHIA—A recent ruling of the Food and Drug Administration permits the use of certain enzyme products in non-medicated animal feeds, according to Rohm & Haas Co., Philadelphia, a supplier of enzymes.

It was noted that the FDA ruled recently that enzyme products such as the company supplies for use in the food industry are not additives within the meaning of the food additives amendment of 1958. Hence it is not necessary to obtain a regulation specifically approving the use of these products in non-medicated feeds for poultry and livestock.

Enzymes in this classification produced by Rohm & Haas include diastatic, proteolytic, lipolytic and cellulolytic products. Diastatic and proteolytic enzymes, trademarked Rhozyme, as well as lipolytic (Lipases) and cellulolytic (Cellulases) enzymes, have a wide range of applications, and have been used for many years in the food industries. Certain of these products, and combinations thereof, have now been shown to be of value for increasing the feeding value of various types of cattle, poultry, and swine feeds, according to Rohm & Haas.

The FDA ruling, based on a joint presentation by major enzyme manufacturers, covers enzymes obtained from a number of different sources, and states that these enzyme preparations, "when derived from strains shown to be non-pathogenic for man and animals and prepared in accord with the manufacturing practices described in your detailed review, would be generally recognized by qualified experts as safe for use in animal feeds. As such, it is not necessary for you to file a petition covering them under the food additives amendment. Further, you need not file a new drug application with this administration before marketing the enzyme preparations."

Rohm & Haas reports that all enzyme preparations which it markets for use in the preparation of non-medicated feeds conform to the requirements set forth in this ruling.

Hal Denis New Pfizer Field Sales Manager

NEW YORK—Appointment of Hal Denis as field sales manager of the agricultural sales division, Chas. Pfizer & Co., Inc., has been announced by J. Jerome Thompson, Pfizer vice president and general manager of the division.

Hal Denis

Mr. Denis will coordinate all field sales staff activities throughout the U.S. He will report directly to Hugh O. Dermody, assistant general manager of the division, who is responsible for all marketing activities.

In making the announcement, Mr. Thompson said, "Our present and long-range plans for the expansion of the agricultural sales division require us to enlarge our sales staff. Mr. Denis will supervise field activities of the sales force to provide maximum effort toward attaining the objectives of the division with respect to animal health, veterinary and feed supplement product sales."

Mr. Denis has been with the company since 1951, joining the organization as a field salesman. His most recent position with the company was sales manager of the veterinary department in the Pfizer Laboratories division.

He is a graduate of the University of Wisconsin with a B.S. degree in medical science.

FDA Clears Pabst Enzyme Product

MILWAUKEE — The Pabst Brewing Co. this week announced that its enzyme feed supplement, "Zymo-Pabst," has been cleared by the Food and Drug Administration.

Dr. James W. Brooks, head of Pabst's animal feed department, said that the "triple enzyme" supplement has been cleared by FDA for "unrestricted distribution and sale."

In connection with the announcement, Dr. Brooks pointed out that the new product has a triple-enzyme make-up. "The three enzymes," he said, "are 'protease' (for protein digestion), 'amylase' (for starches) and 'gumase' (which helps break down plant gums that would otherwise remain partially undigested, making certain nutrients unavailable).

"Extensive field trials have proved Zymo-Pabst highly effective in improving the nutritional quality of cattle, poultry and swine feeds."

Dr. Brooks went on to report on field trials with beef cattle. He said improvements in daily gain and feed efficiency were recorded with and without the presence of hormones. From ½ to ¾ lb. of Zymo-Pabst was added to each ton of complete cattle feed.

Dehy Firm Changes Price Differential

KANSAS CITY—A new price differential for its Hi-N brand of dehydrated alfalfa was announced this week by National Alfalfa Dehydrating & Milling Co.

"Hi-N, National's product that guarantees a minimum of 18% protein and 125,000 units of vitamin A on arrival and a maximum of 23% fiber, will now be priced at $3 over PRO 17, National's 17% protein 100,000 units vitamin A material," said A. R. McFadden, vice president in charge of sales. This is a $1 reduction.

Mr. McFadden pointed out that because of the rigid fiber specifications, it is difficult to rely on conventional blending methods to obtain Hi-N grade. For this reason, he continued, production of Hi-N must start in the fields with cutting at the proper time. Then the whole plant material should be held in classified inert gas storage until processed for shipment.

"National has employed shorter cutting cycles throughout its 10-state producing system to insure consistent higher quality material," Mr. McFadden explained. "By having plants in a large number of producing areas, National can consistently produce enough high quality dehy, despite crop failures at individual points. Also, the company has inert gas storage tanks of from 700 to 1,000 tons capacity at all nine of its terminal facilities which permit classification of the various grades.

"Increased production efficiency and a rapidly expanding demand for the higher grade materials that fit better into modern formula feeds have permitted National to establish this new differential," Mr. McFadden stated.

K.C. Chemists to Hear FDA Official

KANSAS CITY — "Problems Arising from the Use of Agricultural Chemicals" will be the subject of an address at a meeting of the Kansas City Section of the American Association of Cereal Chemists April 27.

The speaker will be Sam D. Fine, district director of the Food and Drug Administration in Kansas City.

The meeting is scheduled at the Hotel President at 8 p.m., following an informal dinner beginning at 6 p.m. in the hotel coffee shop. The group will also hold its annual election of officers.

W. D. Nusbaum Named Purina Treasurer

ST. LOUIS—Wayne D. Nusbaum, manager of the Ralston Purina plant at Fort Worth, Texas, has been named treasurer of the company effective Aug. 1, according to an announcement by Donald Danforth, chairman of the board of directors.

W. D. Nusbaum

Mr. Nusbaum will succeed E. Ray Siler, who is retiring Sept. 30. He will move to St. Louis and headquarter in the company's general office.

Mr. Nusbaum joined the Taylor Milling Co. at its Stockton, Cal., plant in 1941 as grain buyer and assistant manager. The Ralston Purina Co. purchased the Taylor Milling Co. properties in 1945, at which time he became affiliated with this company. He has been manager at Fort Worth since Jan. 1, 1955.

Replacing Mr. Nusbaum as manager at Fort Worth will be Charles R. Courtney, who is now credit manager there.

Machinery Group To Meet May 9

NEW YORK — The 10th annual meeting of the Grain Processing Machinery Manufacturers Assn. will be held Monday, May 9, at the Sheraton-Blackstone Hotel in Chicago. Announcement of the meeting was made by Raymond J. Walter, executive secretary, New York.

The meeting will be held in connection with the American Feed Manufacturers Assn. convention May 9-11 at the Conrad Hilton Hotel. A board of directors meeting the evening of May 8 will precede the membership meeting.

The May 9 program will include business sessions, a luncheon, and the president's reception and banquet in the evening.

The business sessions will include reports from officers and directors and discussions of such things as conventions and exhibitions, the Feed Production School, feed technology program at Kansas State University, industry sales promotion and public relations, trade relations and product and terminology standards.

Northwest Group to Hear Railroad Official

MINNEAPOLIS — R. L. Thorfinnson, vice president in charge of the traffic department of the Soo Line Railroad, will speak at a meeting of the Northwest Feed Manufacturers Assn. May 2 at the Calhoun Beach Hotel in Minneapolis.

Mr. Thorfinnson will cover various developments of importance in transportation, with particular reference to the feed and grain industries. He will discuss such things as railroad rate trends, the future of railroad transportation, truck and water competition, railroad mergers and specialized equipment.

The meeting will start with a social hour at 5:30 p.m. Dinner will be served at 7 p.m., and the talk will follow.

Speakers Announced

STEAMBOAT ROCK, IOWA — Principal speakers for the annual convention of the Independent Grain Warehousemen's Assn. of Iowa May 3-4 at the Hotel Fort Des Moines have been announced by James A. Potgeter, secretary.

Scheduled to speak are: Howard Roach, president, Soybean Council of America; Marvin C. Smith, deputy director for programs, Commodity Stabilization Service office, Evanston, Ill., and J. C. Frankenfeld, Arwell, Inc.

Minneapolis Meeting

Postponement of Any Grain Storage Rate Cut Proposed

By WILLIAM A. BENTZIN
Feedstuffs Staff

MINNEAPOLIS — A suggestion that there be a postponement for a year of any change in government grain storage rate structure "to give Commodity Credit Corp. and grain interests a chance to fully negotiate" was made during a "fact finding conference" April 18 at the Leamington Hotel.

The meeting was called by Sen. Hubert Humphrey (D., Minn.) "to inform the Minnesota congressional delegation on storage problems." Attending were Walter Judd (R.), Odin Langen (R.) and Roy Weir (D.), all Minnesota representatives, and Richard Schmidt, counsel for the Senate Agriculture Subcommittee looking into grain storage rates under the Uniform Grain Storage Agreement.

The long applause that greeted the postponement suggestion by R. H. Hegman, representing the Minneapolis Cash Grain Commission Merchants Assn., echoed the support of a capacity crowd of grain trade men gathered at the meeting.

Rep. Judd agreed that the proposal to hold steady on the rates until "we have more information" was a good one.

E. J. Barry, speaking on behalf of the Minneapolis Terminal Elevator Assn. and the Farmers Union Grain Terminal Assn. of St. Paul, also concurred that the present terms, conditions and rates "should be maintained until investigations now in progress are completed."

Not Justified

He said that all the interests—country elevator people, terminal elevator operators, private enterprise interests and cooperatives — were united in that "the proposed slash in storage and handling rates in this area is not justified."

Mr. Barry disputed the U.S. Department of Agriculture cost study, which used a valuation of 50¢ bu. for the facility. "To use a facility cost of 50¢ bu. represents a very grave injustice to warehousemen operating in this area, particularly in Minnesota," he said.

He submitted photographic copies of contracts awarded in 1958 and 1959 after competitive bidding that indicated the typical size Minnesota country elevator, 60-75,000 bu., would cost more than $1.50 bu.

He noted that costs of construction have risen about 5% a year over the last 10 years and said, "We do not feel that an increase would be out of order, and that any reduction would be a serious blow to a marketing system that has been built up in our area over a long period of time."

Mr. Hegman added that "not only the lower rates but also the contract changes are such a threat to the very existence of country elevator operations that all these small businessmen will have serious difficulty presenting prospective earning ability warranting continued finance from our firms, the Farmers Union, Bank for Co-ops. or the Small Business Administration."

He pointed out the increased hazards of loss on rejected cars not applying against established credits, disallowance of loss due to handling of corn and beans, changing the protection against revised Pure Food & Drug regulations and reduction of time for offset premiums and discounts.

"Such increased hazards cannot be evaluated in dollars, but could amount to greater loss than the rate reduction," he said. "These factors when exacted are of so serious a consequence that bankruptcy is quite likely when the catastrophe strikes."

C. B. Green, vice president and general manager, Globe Elevators Division of F. H. Peavey & Co., said "from the viewpoint of Minnesota port elevators, this is a very illogical time for the government to start rate-cutting when what the government is paying now is not favorably competitive with other demands on these facilities."

"The only way to preserve the basic grain marketing structure is to let it remain broadly flexible and competitive under a continuation of the Uniform Grain Storage Agreement with rates competitive with the open market," he added.

He noted that CCC rates are not as high as statutory rates set by the Minnesota legislature, which are about 18¢, compared with 16.5¢ for CCC grain and the proposed new rate of 13.5¢.

C. L. McMillan, vice president and secretary of the Osborne McMillan Elevator Co., speaking for the Northwest Country Elevator Assn., Minneapolis, declared that the "huge cost of storage, transportation and interest that CCC must pay is not caused by elevators (country or ter-

(Turn to STORAGE, page 93)

Eastern Rail Rate Hearings Nearer

WALTHAM, MASS — The Traffic Executive Assn.—Eastern Railroads may be in a position to place proposed reductions in rail freight rates on eastbound domestic grain on the public docket next month.

This was indicated this week by J. E. Bressette, director of transportation for Wirthmore Feeds, Inc., Waltham, and chairman of the transportation committee for the northeastern feed industry.

He said he had been informed by Ed Hill, chairman of the association, that he expected to convene a special meeting of the association "sometime before the end of April, and be in position to place the proposal on the public docket sometime during the early part of May."

Mr. Bressette added: "It appears that the long awaited public docketing of the proposed rail rate reduction report, as finalized by the association, will be the subject of public hearings in May."

WALNUT GROVE

(Continued from page 1)

added to our manufacturing facilities in eight years, went into operation in Cherokee, Iowa; we expanded our number of field warehouses to 39, and added new facilities at our 240-acre research farm near Atlantic.

"Personnel in all departments exceeds 800, and at year's end we announced that Dr. Damon V. Catron, internationally - recognized authority on livestock nutrition, had joined Walnut Grove as vice president in charge of research and marketing.

"Important as the continuation of sales growth was the announcement that Walnut Grove took a significant step towards its program of major diversification by acquiring majority stock ownership of Watson Bros. Transportation Co., Inc., Omaha, Neb., the nation's sixth largest common motor freight carrier." Mr. Kelloway added that the organizations will continue to operate independently.

Directors elected for 1960 include: Mr. Kelloway, J. J. O'Connor, M. D. Livengood, Clair D. Becker, H. M. Herbert, Boyd Cambridge, Dick Bell, Peter Kelloway and C. A. Zellmer, all of Atlantic; E. M. Hunt, Lincoln, Neb.; Peter A. Janss, Des Moines, Iowa, and Paul H. Kelloway, Anita, Iowa. Mr. Hunt, vice president of the First Trust Company, Lincoln, is a new member.

Following the meeting, directors re-elected Mr. Kelloway chairman of the board; Mr. O'Connor, president; Mr. Becker, vice president; Dr. Catron, vice president in charge of research and marketing; C. C. Hansen, secretary; John L. Bunce, assistant to the president, and Peter Kelloway, assistant secretary.

Mr. Livengood, former vice president and treasurer, was promoted to executive vice president and treasurer.

UNION

(Continued from page 1)

"more than 500 applications" for joining the union have been received from New Jersey poultrymen. "They are coming in at a rate of 50-75 a day," he said.

The union has opened an account at a Vineland bank and Mr. Contaldi said the Teamsters will supply the poultry local with "all financial help necessary."

The Teamsters April 18 unofficially opened an office in a store in Vineland, the hub of this area's giant egg producing industry.

Mrs. Miriam Katz, the woman who masterminded the poultry farm overture to Mr. Hoffa, has maintained silence on the number of poultry farmers who have indicated they want to join the union. April 20 she said figures had not been compiled.

More than 1,000 New Jersey poultry farmers and their wives traveled to Atlantic City on March 29 to hear Mr. Hoffa speak. All but one indicated they would join after an hour-long session in which the union leader lambasted Congress and the Eisenhower administration for "abandoning the depression-battered poultry farmer."

Mrs. Katz, a former model who runs a medium-size egg farm here with her husband, Charles, says poultry farmers in Lakewood, also a large egg producing center, have queried her on forming a separate local there. The proposed south Jersey local will be headed by a group from the Vineland area until permanent officers are elected.

Organizer to Be Sent

In his Atlantic City appearance, Mr. Hoffa promised to send an organizer into south Jersey. Mrs. Katz says the organizer will not arrive until the union charter is issued.

Plans are underway, she says, to hold a meeting in the spacious North Italy Hall here to enroll farmers into the union. No date has been set for the meeting as yet.

Mrs. Katz says the Teamsters will enroll poultry farm members at only 40¢ apiece "because Mr. Hoffa realizes the hard times poultrymen are going through."

Leaders of poultry farm organizations in the Vineland area officially have ignored the Teamster attempt to organize the poultry industry. None has issued any statement.

But Carleton E. Heritage, a dairyman who is president of the New Jersey Farm Bureau, has labeled poultrymen who are flocking to Hoffa as "misguided."

"Farmers must build bargaining strength through their own groups to cope with today's uneven odds in the market place," Mr. Heritage says.

Farmers rallying to Mr. Hoffa appear unperturbed by Senate charges that he is a corrupt union czar.

"Hoffa's reputation doesn't concern me," says Paul Flumenbaum, who runs a small farm near here. "He hasn't been proven guilty of anything."

Poultrymen seeking Teamster help, however, said they are "desperate." Others, too, have indicated that they are disillusioned with hope of Congress finding a solution to the poultry industry's recurring price problem.

"Other Hope Is Gone"

Four area poultry farm leaders who traveled to Washington last year and triggered a House subcommittee investigation of the poultry industry problem conceded that they are putting their hopes in Mr. Hoffa.

"All other hope is gone," they chorused.

Mr. Hoffa has not yet spelled out what action he might take to help the poultry industry. In his Atlantic City address he used the press and Congress as whipping boys as he blamed the "phonies, four-flushers and intellectual geniuses in Congress" for the plight of poultrymen.

He indicated that the poultry problem would be thrust into the national spotlight because "Jimmy Hoffa addressed a crowd of poultry farmers."

Asked at a press conference after his Atlantic City speech whether Teamsters would refuse to haul eggs to stores in an effort to boost the price of eggs, Mr. Hoffa gave no direct answer. He said technical questions were beyond his scope and that Teamster lawyers were studying what action might be taken. He said the government is vigilant concerning violations of the anti-trust laws.

MORRELL

(Continued from page 1)

been president of Foxbilt, will be manager of the Foxbilt operations. Herman Jensen, who managed Golden Sun with his brother Lawrence, becomes vice president of Morrell & Co. and will be manager of the Morrell feed division. Lawrence Jensen will manage the Golden Sun firm.

Purchase of Foxbilt was the final step in a working relationship between Foxbilt and Morrell that began in June, 1955, when announcement was made that Morrell had purchased a minority interest in Foxbilt with an option to purchase additional stock at any time up until April 1, 1960.

In addition to the livestock feed business, Foxbilt owns the Ames-Incross poultry division, which is a breeder and distributor of hybrid chicks and also has a swine division, with breeding of meat-type hogs and leasing breeding stock to farmers as its principal business.

Plans call for some revision of the present lease arrangement of the Foxbilt swine breeding program. Under the new plan, arrangements will be made to sell meat-type swine breeding stock on a conditional sales basis which will allow the producer to pay the greatest portion of the cost after the progeny have been marketed.

No Money Mentioned

Although the announcement made no mention of amount of money involved in either transaction, the annual report of the Morrell firm for the year ended Oct. 31, 1959, stated that Morrell had an investment of $258,000 in Foxbilt, which on Sept. 30 had a net worth of $944,000.

In Mr. McCallum's report to stockholders of the Morrell firm, he said that the investment of $258,000 was in common stock and 4% debentures. He said, at that time, that an agreement had been reached with holders of 80% of the common stock of Foxbilt to exchange 12,500 shares of common stock for 12,500 shares of Morrell stock.

The Morrell stock was priced at $40 a share at that time. The stock was quoted at $34 a share April 14 on the New York Stock Exchange, but a 25% stock dividend was declared on the Morrell common stock effective Feb. 15, 1960.

Foxbilt was founded in 1914 by the late E. Frank Fox. His two sons, Edwin L. and Wayne, have been active in the management of the Foxbilt firm and will remain active in management of the operations.

The Golden Sun Milling Co. was established in Estherville in 1925 by H. N. Jensen and his sons, Herman and Lawrence.

"Morrell will become more diversified with the establishment of the new feed division and acquisition of the two Iowa feed companies," Mr. McCallum said.

He added that Morrell will be better able to market certain meat protein by-products from its slaughtering plants in Sioux Falls, S.D., and Estherville and Ottumwa, Iowa. "Also, we will be able to contribute an improvement in the production of hogs throughout Iowa and adjacent states through research work on the breeding of meat-type hogs," he said.

Morrill & Co. has been carrying on an extensive program of expansion in the East, South and in California, as well as the Midwest.

Most of the plants have been concerned with the packing and processing of meats, however, and formation of the new feed division constitutes the first full step in this direction.

Purchase of Maurer, Inc., Kansas City, Kansas, and Arkansas City, Kansas, meat packer, also was announced recently by the firm. Unofficial reports put Maurer-Neuer annual sales at around $45 million.

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Falling demand cut some of the support out from under a number of major formula feed ingredients this week. The list of items with lower prices included millfeeds, cut sharply; soybean oil meal, down, but in a more moderate way; animal proteins; linseed oil meal; screenings, and a few other miscellaneous ingredients.

Sharp declines were reported in millfeed markets, in spite of lighter production by U.S. mills and mainly because of spotty sales. The market firmed up some at the close of the week, however.

Demand for cash soybean oil meal was anything but brisk. Production proved too great for the slow demand and average prices at the main markets were down nearly $2 ton.

The linseed meal market was slightly easier, but showed little change. Animal protein prices were a bit easier.

The alfalfa meal market was reported unchanged but firm, and the lateness of the crop in the South may step up the price before new crop is available.

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Purdue Scientists Present Beef Feeding Data at Feeders Event

By DR. T. W. PERRY
Purdue University

LAFAYETTE, IND.—Purdue University research in such areas as roughage supplementation, tranquilizers, enzymes, high protein-urea supplements, hormonal substances, amino acids, antibiotics and steer feeding methods was reported here April 22 at the Indiana Cattle Feeders Day.

Summaries of beef cattle feeding studies conducted by Purdue scientists and presented during the Feeders Day program—including conclusions, experimental objectives and methods—are as follows:

The Supplementation of Corn Silage, Corn Plant Pellets, Atlas Sorghum Silage and Hybrid Grain Sorghum Silage in the Wintering Ration of Beef Steers—W. M. Beeson, M. T. Mohler and T. W. Perry: The objectives of this research were: (A) To compare corn silage with dehydrated and pelleted whole corn plant, (B) to compare two types of sorghum silage (forage vs. grain) with each other and with corn silage, (C) to compare 3 lb. of dehydrated alfalfa meal with 2 lb. of Purdue Supplement A as a balancer for predominantly roughage rations and (D) to determine the value of a subcutaneously implanted tranquilizer.

The data reported are the result of 154 days of feeding calves a predominantly roughage ration in accordance with the objectives outlined.

Summary:

1. The overall performance of dehydrated corn plant pellets as a feed for beef cattle was quite similar to that of corn silage. However, because of the cost of processing the corn plant into dehydrated pellets, such a feed could not be justified from an increased nutritional value point of view. Corn plant pellets have the distinct advantage over corn silage of better adaptation to automation and storage. In general, corn plant pellets will have to be competitive with corn and not with roughages to be practical.

2. Hybrid grain sorghum silage gave results almost identical with that obtained from feeding corn silage. Chemical analysis of the two types of silage gave quite similar TDN, protein and crude fiber values. If the tonnage of the hybrid grain sorghum silages can be made as great or greater than that for corn silage, this crop may be given serious consideration as a forage crop in this area. Furthermore, there are some areas of the U.S. where the grain sorghums can be grown and where corn silage cannot be grown.

Atlas sorghum silage was not as valuable as the hybrid grain sorghum silage. There are at least two reasons why this is true. An extremely rainy summer prevented proper cultivation and thus a large amount of weeds were harvested with the sorghum plants. Furthermore, previous research has indicated Atlas sorghum is lacking in energy, when compared with corn silage, for beef cattle.

3. Two pounds of Supplement A supplemented either corn silage or dehydrated corn plant pellets more efficiently than 3 lb. of dehydrated alfalfa meal. Dehydrated alfalfa meal has a beneficial role in most types of cattle feeding programs in drylot. However, Supplement A contains a number of factors—including dehydrated alfalfa meal—which undoubtedly provide a better balance of factors required to balance most cattle rations as best we understand this problem today.

4. There was no consistent advantage from implanting the tranquilizer trifluomeprazine.

5. The feeding of any of the roughages tested plus 2 lb. of grain and either 2 lb. of Supplement A or 3 lb. dehydrated alfalfa meal produced quite satisfactory wintering gains of from 1.08 to 1.76 lb. per day.

The Value of an Implanted Tranquilizer and of Supplemental Enzymes When Fed With Either High-Moisture Ensiled Shelled Corn or Regular Shelled Corn to Fattening Beef Steers—T. W. Perry, W. M. Beeson and D. D. Cope: The objectives of the research reported under this program were: (A) To further compare the feeding value of ensiled high-moisture shelled corn (29.7% H_2O) with shelled corn from ear corn cribbed at the usual moisture content (19.5%) for fattening cattle being fed a full feed of shelled corn, 2 lb. of Supplement A, limited corn silage and free choice minerals, (B) to study further the effect of feeding enzymes to fattening cattle being fed the two types of corn listed above, (C) to compare the effect of enzymes from three sources (Agrozyme, Merck; Diazyme and HT-550-F, both from Takamine) when fed at a level of .0075 lb.—or 3.3 gm.—per head daily, and (D) to study the effect of implanting levels of either 0, 20 mg. or 40 mg., subcutaneously, of the tranquilizer trifluomeprazine within each of the lots.

Summary:

1. High-moisture shelled corn compares quite favorably with corn that is cribbed in the conventional manner. Although cattle fed the low-moisture shelled corn (19.5% H_2O) gained slightly more rapidly (2.09 lb. vs. 1.95 lb. per day) than those fed the ensiled high-moisture shelled corn (29.7% H_2O), feed cost per pound of gain is almost identical (16.8¢ vs. 16.7¢ per pound gain).

2. The feeding of the three enzyme preparations tested depressed rate of gain from 6% to 20%. The feeding of enzymes caused a depression in rate of gain when fed with either the low-moisture corn or with the high-moisture corn. Furthermore, the feeding of the enzymes resulted in a depression in appetite for corn in every case (from 7% to 19%).

3. Implanted trifluomeprazine (a tranquilizer) was of no benefit under the conditions tested. Although cattle implanted with 20 mg. of the tranquilizer gained slightly more rapidly than the non-implanted controls, those implanted with 40 mg. gained 8% less rapidly than the controls.

4. This research once again demonstrates one of the most logical approaches to lowering the cost of finished beef production. Feed costs per pound of gain in the control lots are very close to 16¢. It is reasonable to build at least the first half of your calf fattening program around a predominantly corn silage ration.

During the first 140 days of this experiment the calves have averaged eating an approximate ratio of 2 lb. of corn silage for every 1 lb. of corn they have eaten—plus a balancer of 2 lb. Supplement A and free choice minerals. In the latter part as calves approach a finish, the level of silage will need to be lowered and the level of corn raised in order to bring about the desired slaughter finish.

Hand-Feeding vs. Self-Feeding and Shelled Corn vs. Ground Ear Corn for Fattening Steers—T. W. Perry, Donald Webb, C. H. Nickel and W. M. Beeson: The practice of self-feeding fattening cattle is a relatively new method of feeding, when compared with the method of hand-feeding once or twice per day. However, sufficient experience has been obtained under research conditions and under practical feedlot conditions to show that it is practical and efficient to self-feed fattening beef cattle when a balanced ration is available to them.

Just as in the case of hand-feeding vs. self-feeding there is divided opinion as to the comparative merits of ground ear corn and shelled corn for fattening beef cattle. One year's research has indicated the two types of corn are quite similar in nutritive value when their value is measured in terms of rate of gain and feed cost per pound of gain.

Therefore, the objectives of this research were: (A) To compare hand-feeding with self-feeding as methods of feeding fattening beef steers; (B) to compare shelled corn with ground ear corn, and (C) to determine the amount of salt required to control the intake of supplement fed free choice to cattle self-fed on shelled corn or ground ear corn.

The experimental design is as follows:

Hand-Fed

Lot I—Shelled corn, full fed; Supplement A, 2.5 lb.; hay and minerals, free choice.

Lot II—Ground ear corn, full-fed; Supplement A, 2.5 lb.; hay and minerals, free choice.

Self-Fed Free Choice

Lot III—Shelled corn, Supplement A plus 3-6% salt, hay and minerals.

Lot IV—Ground ear corn, Supplement A plus 3-6% salt, hay and minerals.

Summary:

1. Under the conditions of this research, self-fed cattle gained somewhat faster than the hand-fed cattle (2.48 lb. vs. 2.36 lb. per day), but when this difference is analyzed mathematically there is no statistically significant difference.

The big advantage for self-feeding cattle is that the cattle are on "full feed" the first day and are on "full feed" until they are sold. Self-fed cattle ordinarily do not go off feed, founder or scour. Possibly their daily consumption of feed may vary from time to time, but they make their own adjustments without concerning the cattle feeder. Hand-fed cattle do not make these adjustments as easily.

2. Fattening cattle make very efficient use of the cob portion of ground ear corn. Cattle fed a full feed of ground ear corn gained almost as rapidly as those fed a full feed of shelled corn (2.32 lb. vs. 2.40 lb. per day).

3. The amount of salt required to control the intake of free choice Supplement A varied. More salt is being required to control the intake of free choice Supplement A in Lot IV (ground ear corn) than in Lot III (shelled corn). The average amount of salt required to control the daily Supplement A intake to 2.6 lb. in Lot III has been approximately 2.5%; in Lot IV the average level of salt required has been 6%. The level of salt required to control the intake of a free choice supplement will vary in accordance with the palatability of the other ingredients of the ration.

The Value of Tranquilizer Injections for Slaughter Cattle Prior to Shipping—T. W. Perry and W. M. Beeson: Two separate trials were conducted to study the effect of intramuscular injections of a tranquilizer in the neck region into fat beef cattle a few hours before they were to be trucked to terminal market for slaughter. In one trial 100 mg. of the tranquilizer 2-propionyl-10-(gamma-dimethyl-amino-propyl) phenothiazine was injected in an oil solution and in the other trial it was injected in a water-soluble solution. Sixty-five head of 1,000-lb. steers were used in one trial and 66 in the other.

Summary:

1. Cattle that had been injected intramuscularly in the neck region with 100 mg. of a tranquilizer in either oil (Trial I) or in an aqueous solution (Trial II) at approximately 10 a.m. were noticeably more quiet and gentle at the time they were loaded out at 2:30 p.m.

2. Tranquilized cattle consistently suffered less shrink in transit to terminal market (1.9 vs. 2.5% in both tests) than cattle not receiving the tranquilizer.

3. Dressing per cent (hot carcass weight divided by market weight) was higher for the control animals not injected with the tranquilizer (63.2% vs. 62.6%).

4. The combined loss of shrink-in-transit and for slaughtering was almost identical for both the tranquilizer-injected cattle and for the non-injected cattle in both tests.

Hormonal Substances for Fattening Beef Heifers—Martin Stob, T. W. Perry, F. N. Andrews, M. T. Mohler and W. M. Beeson: The purpose of this research was to continue the study of how best to administer hormonal substances to fattening beef heifers. Because of the very nature of heifers, the administration of female hormones to them is more apt to be accompanied with side effects than in the case of steers.

The objectives of this research were: (A) To compare oral feeding (10 mg. per day) of diethylstilbestrol (DES) with subcutaneous implantation (either 36 mg. initially or 12 mg. initially and 12 mg. subsequently); (B) to compare two other implanted hormonal materials—20 mg. estradiol plus 200 mg. testosterone (Synovex-H) and 24 mg. estradiol valerate plus 60 mg. testosterone enanthate plus 60 mg. progesterone caproate (Rapigain).

Summary:

1. All hormone treated heifers gained significantly more than the non-treated control heifers. The increase in gain brought about by hormone treatments ranged from 11% to 23%. Control heifers gained at the rate of 2.01 lb. per day over the 189-day feeding trial.

Comparable responses for the various hormone treated lots were: 10 mg. DES orally per day, 19% increase; 36 mg. DES implant, 12% increase; implantation of 12 mg. DES initially and 12 mg. DES 84 days

WIN GOLDEN FLOCK AWARD—Leo Bilger, plant sales manager, and his "Bilger's Bantams" were announced as winners of Pillsbury Feeds' Golden Flock award for 1959 and were honored at a special award banquet recently. The award is made annually to the plant sales force which has the greatest tonnage increase per man in adult poultry feeds during a specified period. A traveling trophy was presented to the group, plus an individually engraved Golden Egg trophy for each man. In the picture are (left to right): Jack Hubbard, marketing manager, Clinton, Iowa, who made the award; Leo Bilger, Reedley-Modesto, Cal., manager, and territory managers Jim Smith, Gerald Bedbury, William Cherry, Larry Lawrence and Fred Hagist.

later, 20% increase; implanting Synovex-H, 24% increase; implanting Rapigain, 18% increase.

2. There was some stimulation of the mammary glands and vulva of the hormone-treated heifers. However, a few of the animals in the control lot showed almost the same degree of stimulation.

3. One heifer in each of the treated lots has had a vaginal prolapse. In only one case, however, was the prolapse severe enough to require removal of the heifer from the experiment; the others have remained.

4. Hormonal treatment of slaughter heifers provides a method for improving rate of gain and feed efficiency which will result in reduced cost of gain. However, cattle feeders should realize that treatment of heifers with estrogens may result in vaginal prolapse in some of the animals.

The Value of Feeding Enzyme Preparations to Fattening Beef Cattle—W. M. Beeson, T. W. Perry and E. D. Purkhiser: Three trials were conducted—two in drylot and one on pasture—to study the value of supplemental enzymes in the ration of fattening beef cattle. The objectives of the three trials were: (A) To test the value of feeding a mixture of proteolytic (protein-splitting) and amyloiytic (starch-splitting) enzymes on growth rate and feed efficiency of fattening cattle; (B) to compare enzymes from four sources (Agrozyme, Merck; Diazyme and HT550-F from Takamine, and Zymo Pabst); (C) to compare two levels of one preparation—.0075 lb. vs. .0025 lb. Agrozyme, Merck; (D) and to test the value of feeding 25 mg. per day of the antibiotic oleandomycin, with or without the enzyme preparations.

Summary:

1. The range of daily gain for all lots of cattle was from 1.69 to 2.37 lb. per head per day, and the feed cost per pound of gain was 17.6¢ to 3¢.

2. Analysis of the data indicated that there was no significant difference in gain among treatments in any one of the experiments. This would indicate that, under the conditions of these three trials, no significant effect on gain was caused by feeding the four enzymes at the levels tested nor by the feeding of 25 mg. oleandomycin per head daily.

3. Feeding enzymes did not improve the carcass grades, but there was a slight upgrading of the carcasses from feeding oleandomycin.

4. Feed efficiency was not improved by enzyme supplementation, but there was a slight advantage in feed conversion for the steers fed 25 mg. of oleandomycin daily.

High Protein-Urea Supplements With and Without Lysine For Fattening Calves—T. W. Perry, W. M. Beeson and M. T. Mohler: A majority of the mixed protein supplements used in cattle rations contain 30-32% crude protein. Recently there has been increased interest in feeding supplements with higher levels of protein (48-50%) whereby the extra protein equivalent is made up of urea. Although all of the essential amino acids can be synthesized in the rumen by micro-organisms from non-protein nitrogen (urea) there is a possibility that some one or more amino acids such as lysine are not produced in adequate amounts for maximum performance. Therefore, this research was designed to study the following objectives: (A) To compare a 32% protein supplement (Supplement A) with supplements in which the crude protein levels were built with urea to the following levels: 40%, 48%, 56%, 64% and 72% when the various supplements were fed on same protein equivalent basis to balance the ration for fattening beef calves, and (B) to determine the effect of feeding 10 gm. of lysine per steer daily with the various supplements.

Summary:

1. Adding lysine to supplements containing different levels of urea improved the daily gain (5-13%) and feed efficiency of steers (1-4%). The average increase in daily gain (2.09 vs. 2.24 lb.) between the six lots receiving no lysine and lysine was highly significant. The addition of lysine to a supplement containing only natural proteins (Supplement A) was of no benefit.

2. High urea supplements with lysine containing 64 and 72% protein equivalent were equal to a 32% supplement when fed on the same protein basis. In other words, 1 lb. of a 64% supplement with lysine was equivalent to 2 lb. of a 32% supplement.

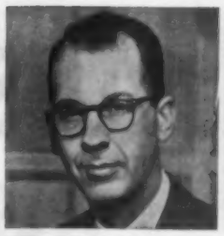
3. Without lysine, feeding urea supplements on the same protein equivalent basis was not as effective in balancing a fattening ration as 32% supplement composed of natural proteins.

4. Apparently lysine is one of the limiting nutritional factors in the utilization of urea by cattle.

5. This is the first step in a program to develop a 64% cattle supplement that can be fed at the rate of 1 lb. per head daily and give results equivalent to 2 lb. of a 32% supplement.

Lysine, Methionine and Zinc Bacitracin as Additions to Supplement A and to a 64% Protein-Urea Supplement for Fattening Beef Steers—W. M. Beeson, W. H. Gossett and T. W.

(Turn to SCIENTISTS, page 91)



A. F. O'Brien

G. A. Ensminger

J. F. Gustafson

AFMA SPEAKERS—These three men will speak at the American Feed Manufacturers Assn. annual meeting May 10-11 in Chicago, talking on the central theme of possible changes in agriculture and their effect on the feed industry (Feedstuffs, April 9). A. F. O'Brien (first picture), secretary and chief finance officer, Ralston Purina Co., will speak on "Capital and Money Management"; G. A. Ensminger (second picture), vice president, Albers Milling Co., will talk on "Marketing the End Product," and John F. Gustafson, associate with McKinsey & Co., Inc., Chicago, a management consulting firm, will discuss "Cutting Costs and Improving Efficiency."

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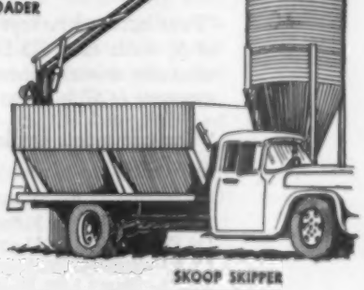

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Once again Dr. Salsbury's Histostat-50 has been proven to prevent blackhead best and to provide other benefits needed by turkeys for fast, profitable gains. The following is taken from the "1959 TURKEY DISEASE CONTROL REPORT," University of Minnesota, Northwest School and Experiment Station, located at Crookston, Minnesota. It is reprinted here to give you factual data on a series of tests that are important to every feed man.

"Infectious Enterohepatitis (Blackhead) continues to be one of the more important turkey diseases in this area. According to USDA reports, death losses from this disease amount to over $3,750,000 annually, and there is an additional financial loss because other birds in the flock become infected but survive and show a loss of weight and market condition. Additional birds may be condemned at the time of inspection because of healed cecal or liver lesions.

"In the past ten years, progress has been made in the development of effective drugs, but the complete prevention and control of blackhead has not been achieved. Because there is little or no immunity to the disease, the preventive program has to be used on a continuous basis.

"The objectives of this year's projects were:

1. To compare the efficacy of .025 per cent 4-nitrophenylarsonic acid (Histostat-50), .025 and .035 per cent Nithiazide (Hepzide), .011 and .0166 per cent NF-64, .0166 per cent NF-179 and .011 per cent of furazolidone (NF-180) when used on a continuous basis to prevent blackhead.
2. To determine the effect of these drugs when used continuously from 4 to 24 weeks on the growth rate and finish of the turkeys.

"Four hundred turkeys were divided into eight flocks of 50 birds each (25 hens and 25 toms) and rotated clockwise at weekly intervals in the pens to insure equal exposure of all birds to the contaminated yard.

"The treatments employed from 4 to 24 weeks were as follows:

Lot 1B—Basal ration Minnesota Standard 25% protein.
Lot 2B—Basal+1 lb. Histostat-50 per ton.
Lot 3B—Basal+1 lb. 11 ounces Hepzide 30 mix per ton.
Lot 4B—Basal+2 lbs. 5 ounces Hepzide 30 mix per ton.
Lot 5B—Basal+2 lbs. NF-64 mix (100 gms. pure NF-64) per ton.
Lot 6B—Basal+3 lbs. NF-64 mix (150 gms. pure NF-64) per ton.
Lot 7B—Basal+3 lbs. NF-179 (150 gms. pure NF-179) per ton.
Lot 8B—Basal+2 lbs. NF-180 (100 gms. pure NF-180) per ton.

Blackhead Inoculations

"Fifty per cent of the hens and toms were inoculated with embryonated Heterakis eggs on July 24, 1959. The birds were fed only chopped yellow corn as their only source of feed and water for 20 hours prior to the inoculation. Medicated feeds were again fed on the evening of the day of inoculation. The other birds in each lot were exposed to the disease by natural contact.

Diagnosis

"All birds that died were autopsied and cause of death determined. The heart, liver, spleen and intestinal tract were fixed in formalin solution and sent to the Veterinary Laboratory for further study. This was to determine if any other diseases were complicating the blackhead losses.

Drug Analysis

"Representative samples of each feed at each mixing time were sent to the laboratory of the respective manufacturers for drug analysis. The drugs were prepared in a suitable carrier pre-mix, then added to a soybean meal base before being added to 1,000-pound mix of the Minnesota Standard Turkey ration.

"The analysis of the drug levels of the forty-eight mixings of the various rations showed good agreement between the theoretical and the actual amounts of the many different levels of drugs used in the experiments. The assays showed the percentage of drugs in all rations to be well within the limits of error of the analysis.

Conclusions

"From 10 to 14 days after the exposure the birds showed the effects of the disease particularly in the control pen. Losses occurred starting about 14 days after exposure. During the experiment, a few birds died from non-specific causes. There was no other disease apparent in the flock.

(Comparative data are given in table on next page.)

"Although the range has been used for these blackhead studies since 1951 and in earlier experiments heavy mortality was encountered from natural exposure, in recent years very little exposure has been obtained

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Weight, Feed Efficiency, Finish, and Mortality Data

Lot Number	1B	2B	3B	4B	5B	6B	7B	8B
Drug Treatment	None	1 lb. Histostat 50	1 lb. 11 oz. Hepzide 30	2 lb. 5 oz. Hepzide 30	2 lb. NF 64	3 lb. NF 64	3 lb. NF 179	2 lb. NF 180
Av. Wt. Toms, Lbs.	21.96	22.94	21.81	21.95	22.47	21.49	23.44	23.05
Av. Wt. Hens, Lbs.	15.13	15.58	14.99	15.01	15.72	15.28	15.54	14.74
Feed Req. Per Lb. Gain	5.08	4.17	4.67	4.32	4.63	3.91	3.98	4.48
Feathering—Toms	93.75	98.75	94.44	100.00	100.00	89.29	98.96	97.50
Hens	100.00	100.00	100.00	100.00	98.75	98.86	100.00	99.00
Fleshing— Toms	84.38	96.25	90.28	84.38	92.30	80.95	92.71	88.75
Hens	100.00	100.00	100.00	100.00	98.75	98.86	100.00	98.00
Mortality Blackhead, %	24%	2%	12%	10%	22%	14%	4%	12%

from the soil. Heterakis ova have been administered for the past few years to supplement the pen exposure but in spite of this exposure there does not seem to be a buildup of the infection in the soil. Whether the constant use of the area with the continuous use of medication has played any value in reducing the amount of blackhead picked up from the pen exposure is open to speculation.

"With the exception of Lot 5B, the mortality was reduced 50 per cent or better. Lots 2B and 7B had the lowest loss from blackhead.

"At the time of evisceration, the organs of all birds were examined for evidence of lesions of Blackhead or any other diseases. A few birds showed healed lesions of blackhead, but had recovered to pass inspection."

What Does This Mean To You?

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Charles City, Iowa

TO THE FEED INDUSTRY

Sen. Karl E. Mundt To Address Pfizer's Research Conference

NEW YORK — The eighth annual research conference of the Agricultural Research and Development Center, Chas. Pfizer & Co., Inc., will be held May 8 at the Conrad Hilton Hotel, Chicago, Ill.

Sen. Mundt

Highlighting the one-day affair will be a banquet address by Sen. Karl E. Mundt (R., S.D.). The Senator, currently a member of the Senate Committee on Agriculture and Forestry and the Select Committee on Improper Activities in the Labor and Management Field (the McClellan Committee), will address the group on the future role of agriculture. He will specifically emphasize the government's plans to expand our foreign and domestic agricultural markets.

Research Summaries

The afternoon program will include scientific summaries of current research in agriculture by five outstanding university scientists.

Latest research information on swine, poultry and ruminant nutrition, poultry diseases and veterinary medicine will be presented by Dr. D. E. Becker, University of Illinois; Dr. James McGinnis, Washington State University; Dr. C. F. Huffman, Michigan State University; Dr. Roy Luginbuhl, University of Connecticut, and Dr. C. K. Whitehair, Michigan State University, respectively.

In announcing the 1960 program, J. Jerome Thompson, Pfizer vice president and general manager of the agricultural division, said: "Today, the scope of our technical and scientific agriculture commands the attention of leaders in government, private industry, university and college. Throughout the years our annual research conference has provided a platform for representatives from these three groups to share their agricultural knowledge for the benefit of the industry.

"The university scientists who will participate in our program this year," said Mr. Thompson, "are prime examples of the contributions this group is making to the progress of agriculture. Such men as these, working in cooperation with scientists from private industry, form a team of dedicated men who have spearheaded the vast technological revolution in agriculture that has given us a standard of living envied by the entire world."

Commenting on the participation of Sen. Mundt, Mr. Thompson said that he will bring to the conference a "lifetime of service to the ideals of our great country and the well being of those engaged in agriculture."

He was elected to the House of Representatives in 1938, and to the Senate in 1948. Sen. Mundt was instrumental in drafting legislation which resulted in Public Law 480, the surplus disposal program, and was the author of the legislation that set up the Voice of America program.

He has received the Freedoms Foundation Award three times for "exemplary contributions to our American Way of Life."

Propose Amendments To Poultry Grading

WASHINGTON — Amendments to regulations governing the voluntary grading and inspection of poultry were proposed by the USDA.

The proposed amendments would (1) change the descriptive terms in the standards to provide for a greater amount of flesh on the breast of A Quality birds; (2) redefine the standards in certain respects so that they could be more uniformly applied; (3) establish standards and grades for poultry parts; (4) establish wholesale and procurement grades; (5) limit the use of the official letter grade mark on consumer packages, and shipping containers of ready-to-cook poultry, to products which were graded on an individual basis, and (6) modify the provisions for charges for the grading service.

Interested parties are given 30 days in which to comment on the proposed amendments.

Copies of the proposal are available on request from the Poultry Division, Agricultural Marketing Service, U.S. Department of Agriculture, Washington 25, D.C.

STUDY FINDS RABBITS NEED LESS PROTEIN

ITHACA, N.Y. — A study of hundreds of rabbits at Cornell University has indicated that they could get along with about 5% less protein than is included in most rabbit feeds.

Dr. S. E. Smith of the New York State College of Agriculture jokingly says that this clears up one of spring's age-old mysteries—why the Easter rabbit gives eggs away.

"He simply doesn't need them," says the professor. Rabbits just don't need as much protein as most feed producers think, he adds.

"It's clear, now, why the Easter rabbit is so free with his eggs," the professor chuckles. "He can't use them himself."

But another mystery is yet to be solved. No one has discovered where the rabbit gets the eggs.

Californians Urge Credit Cooperation

SAN FRANCISCO—The next move to be made by the grain industry committee investigating excessive credits in the California grain market is "to concentrate on convincing members of the grain trade to participate in the work of the Credit Managers Assn.," reported the committee's chairman, Ernest A. Silverfield, Continental Grain Co.

"In addition to sending letters to all members of the trade, the committee members have agreed to contact grain firms personally to urge their membership in the association," Mr. Silverfield said.

"With accurate credit information at our disposal and with the cooperation of the banks, the proper solution of the credit question will be possible."

Robert L. Shearn, vice president of the Bank of California and loan officer in the bank's grain and livestock department, attended a recent committee meeting and commented: "We are interested in knowing that our borrowers are maintaining proper credit relations with the grain industry." He added that he believed other banks in the San Francisco area would participate in future discussions of the credit problem.

Mr. Silverfield announced that the next meeting of the credit committee will be held as soon as members have completed their person-to-person contacts with prospective members of the Credit Managers Assn.

Poultry Feed with Hygromycin Announced

TORONTO — Effective control of most types of poultry worms is claimed for a new medicated feed which contains hygromycin B.

The "continuous control" of worms in poultry has been made possible in "a completely new and easy" way by the introduction of a special feed containing hygromycin, says an announcement from the Shur-Gain division of Canada Packers, Ltd., Toronto.

The new poultry wormer feed, called "wormedicated" by the Toronto firm, is fed to a flock instead of its regular ration for eight weeks "to achieve effective control of most of the common types of worms which have so long plagued poultry generally and growing pullets particularly," Shur-Gain officials report.

Action Described

Says W. K. Meyer, Shur-Gain's chief nutritionist: "Replacing the regular feed with the 'wormedicated' feed has the effect of reducing the infestation of worms in the chicken's system at the time of treatment and limiting reinfestation of the bird. This is done by inhibiting worm egg production and thus interrupting the worms' life cycle.

"Whereas the old types of dosing with a single shot of a worm treatment accomplish a reduction in the worm burden at the time of treatment, it will not break the life cycle of the worm. Thus, repeated treatment is necessary which is both troublesome and costly. The new method of continuous worm control makes repeated treatment unnecessary, provided the litter is not recontaminated."

Shur-Gain officials said that this is the third time in two years that their company has introduced "first" feeding programs "which have provided a simple, effective and inexpensive method of controlling various livestock and poultry parasites."

Other Medicated Feeds

They recall that two years ago Shur-Gain feed manufacturers throughout Canada made medicated hog feeds containing hygromycin available "for the first time." These feeds control hog worm infestation in much the same way as the new "wormedicated" poultry feed, it was noted.

"This antibiotic, which has proved so effective with hogs, has been tested and found to have even wider benefits when used as an ingredient of special Shur-Gain poultry feeds," company officials comment.

In addition to the medicated hog and poultry feeds for continuous control of internal worms, last October the same manufacturers introduced "Warblerid" feed for controlling warble grubs in cattle through feeding.

Test work on the new poultry feed has been conducted over the past two years by Shur-Gain and various universities, the announcement said.

USDA Reports Cattle Numbers Up 8%

WASHINGTON—The number of cattle and calves on feed in 26 major feeding states totaled 6,663,000 head on April 1, according to a USDA report. In the 21 states for which comparable 1959 data is available (with a total of 6,401,000 head) an increase of 8% is recorded. (Feedstuffs, April 16.)

The accompanying table shows figures by states:

Cattle and Calves on Feed April 1, 1959; Jan. 1 and April 1, 1960, with Comparisons*

State	April 1, 1959 1,000 head	January 1, 1960 1,000 head	April 1, 1960 1,000 head	April 1, 1960 as percent of April 1, 1959 Per Cent
Pennsylvania	69	83	76	110
Ohio	172	194	172	100
Indiana	228	224	182	84
Illinois	628	688	653	104
Michigan	108	138	125	116
Wisconsin	99	121	121	122
Minnesota	402	416	434	108
Iowa	1,446	1,510	1,605	111
Missouri	275	298	275	100
North Dakota	91	125	100	110
South Dakota	250	247	232	93
Nebraska	680	665	680	99
Kansas	209	293	263	126
North Central States	4,596	4,911	4,852	106
Oklahoma	44	69	54	123
Texas	155	239	156	101
Montana	40	70	57	142
Idaho	116	138	115	99
Wyoming†		55	47	
Colorado	318	385	341	107
New Mexico†		54	45	
Arizona	187	265	207	111
Utah	44	58	47	107
Nevada†		35	17	
Washington†		115	100	
Oregon†		66	53	
California	370	663	496	134
Western States†		1,904	1,525	
21 State Total‡	5,939	6,881	6,401	108
26 State Total††		7,206	6,663	

*Estimates include only cattle being fattened for market as a more or less distinct agricultural enterprise, and excludes small operations incidental to dairy and general farming. Cattle thus fed are presumed to produce carcasses that will grade good or better.

†Data for April 1, 1959 is not available.

‡Includes 12 North Central States, Pennsylvania, Oklahoma, Texas, Montana, Idaho, Colorado, Utah, Arizona and California.

††Includes 21 States in ‡ and Wyoming, New Mexico, Nevada, Washington and Oregon.

J. K. Rutter Joins Feedstuffs Staff

MINNEAPOLIS—James K. Rutter has joined the Feedstuffs editorial group, Milton B. Kihlstrum, president of The Miller Publishing Co., announced this week.

J. K. Rutter

Mr. Rutter was formerly associate editor of Wallaces' Farmer. Prior to that, he served as news editor of the Anamosa, Iowa, newspapers.

He is a graduate of Iowa State University where he obtained a degree in agricultural journalism. He was editor of the Iowa Agriculturist and president of the Iowa Chapter of Sigma Delta Chi.

FEED CORPORATION

TURLOCK, CAL. — Central Valley Feeds, 316 Market Street, has been incorporated in Turlock with a capitalization of $200,000. Partners are Robert M. Disney and Chester A and Mary E. Johnson.

Central Soya Dividend

FORT WAYNE, IND.—The board of directors of Central Soya Co., Inc., has declared a quarterly cash dividend of 27½¢ per share on the capital stock of the company, payable May 16, to stockholders of record at the close of business April 29, according to an announcement by Harold W. McMillen, chairman of the board.

This is the third quarterly dividend of the current fiscal year and continues the company's 18-year record of uninterrupted cash dividends.

The cash dividend of 27½¢ per share is equivalent to the 55¢ per share paid for the first quarter before the 2-for-1 stock split on Nov. 4, 1959. It represents a 10% increase over the quarterly dividend paid for the same period last year after reflecting the 2-for-1 stock split.

Prediction Accuracy Of Poultry Survey Committee Cited

CHICAGO—"Approximately three fourths of the 145 Poultry Survey Committee forecasts during the past three years have been right or in the right direction of change. This is an excellent record since nearly half of the forecasts extended seven months or more into the future and more than three fifths were price forecasts." So stated Oakley M. Ray, director, market research, American Feed Manufacturers Assn., after an evaluation of each forecast since the formation of the committee in 1957.

Members of the Poultry Survey Committee are five of the country's leading college poultry economists including: Dr. Ralph L. Baker, Pennsylvania State University; Dr. S. Kent Christensen, Oregon State College; Dr. William R. Henry, North Carolina State College; Dr. R. L. Kohls, Purdue University, and Dr. Henry Larzelere, Michigan State University. Economists from industry and the U.S. Department of Agriculture serve ex-officio.

The Poultry Survey Committee is co-sponsored by AFMA, American Poultry & Hatchery Federation, National Turkey Federation, and Poultry & Egg National Board.

The committee was organized in January, 1957, to provide reliable outlook information concerning broilers, turkeys and eggs. Members of the committee were asked to make specific forecasts which would help all segments of the poultry industry to make planning decisions.

The high degree of accuracy and a large percentage of long-range forecasts indicate that the committee has been performing the function for which it was organized, Mr. Ray stated. He continued, "Committee forecasts are widely distributed immediately following each quarterly meeting. Therefore, everyone who is interested can share the benefits of the outlook information."

Mr. Ray gave the following evaluation of the forecasts: Egg predictions, 80% right or right direction; broilers, 68%, and turkeys, 73%. The most important forecasts for planning purposes probably are the price forecasts seven months or more into the future, according to Mr. Ray. More than three fourths of these forecasts were right or in the right direction. Seventy-one per cent were right, 5% right direction and 24% were wrong.

E. B. Copeland Joins Allied Mills Operation

CHICAGO — Announcement has been made by F. H. Blough, vice president in charge of manufacturing, Allied Mills, Inc., of the appointment of Elster B. Copeland, to be in charge of the company's soybean operations at Guntersville, Ala.

E. B. Copeland

The new Allied soybean processing plant, which has been under construction for almost a year, is scheduled to begin processing operations about May 1.

Mr. Copeland joins Allied after serving as president of the Connecting Terminal Grain Elevator Corp., Buffalo, N.Y. Prior to this, he served as vice president of States Grain Corp., New York City, and as vice president of Harper Feed Mills, Washington, Pennsylvania.

Territory Manager Named by Salsbury's

CHARLES CITY, IOWA — Alfred W. Schriner of Santa Rosa, Cal., has joined Dr. Salsbury's Laboratories as a territory manager. He will direct sales and service in northern California and Nevada for the poultry and animal health product firm.

A. W. Schriner

A native of Attica, Ohio, Mr. Schriner was manager of a poultry equipment business and caged layer poultry farm in California before joining Dr. Salsbury's. Prior to that, he had considerable experience as a salesman for poultry feed in the area.

W. E. Glennon to Talk

ST. PAUL—W. E. Glennon, executive president of the American Feed Manufacturers Assn., will be a guest speaker at the 45th annual meeting of the American Association of Cereal Chemists May 1-5 in Chicago.

Mr. Glennon, who has been active in the grain and feed industry since 1934, has been with the AFMA since 1945.

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MINNEAPOLIS Pv DULUTH

Pay Way Feed Mills Appoints Nutritionist

KANSAS CITY — Larry Scott has been named nutritionist of Pay Way Feed Mills, according to Max Straube, president of the Kansas City feed firm.

Larry Scott

Prior to joining Pay Way, Mr. Scott was director of nutrition and research for Provico Feeds of Botkins, Ohio, for the last nine years. Mr. Scott holds a master's degree in animal nutrition from the Oklahoma State University. He is a member of the Nutrition Council of the American Feed Manufacturers Assn. and the American Society of Animal Production.

NATHAN MAYO DIES

OCALA, FLA.—Nathan Mayo, veteran agriculture commissioner, died on April 14 at the age of 83. Mr. Mayo served as head of the Florida agriculture department for a record 37 years.

Arizona Poultry Day Slated for May 6

TUCSON, ARIZ. — "How to produce better eggs and sell them profitably" is the theme of the 4th annual Arizona Poultry Industry Day set for May 6, at the University of Arizona's poultry research center in Tucson.

Poultrymen from throughout Arizona, as well as representatives of suppliers, dealers and distributors of poultry and poultry products, normally attend this meeting.

University of Arizona research scientists will report on projects designed to improve poultry health, management, products and merchandising. The poultry staff will serve a chicken barbeque at noon.

Dean Harold E. Myers of the College of Agriculture will welcome the poultrymen at 10 a.m. Other speakers include Don Schneider, L. W. Dewhirst, Terrell Crowley, B. L. Reid, Gordon Powell, A. A. Kurnick and Frank Rollins, all of the Arizona poultry staff, and James Kaffenberger, Phoenix, state egg inspector.

New Wirthmore Bulk Station Head Named

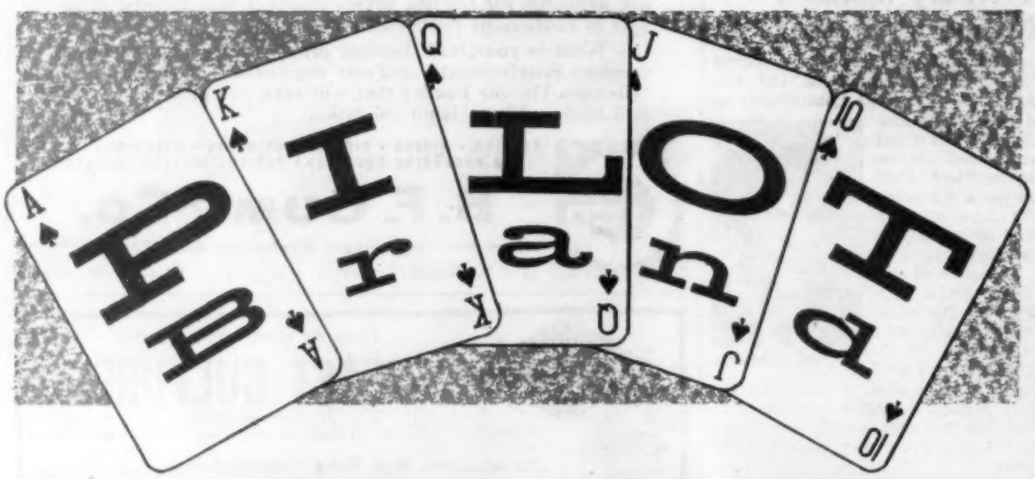
WALTHAM, MASS.—Albert D. Hibbard, Riegelsville, Pa., has been named manager of the new Wirthmore bulk station at Florin, Pa., scheduled for completion about June 1, according to a recent announcement from the company's headquarters.

Mr. Hibbard, a graduate of Pennsylvania State College, has served for the past two years as a Wirthmore sales-service representative in this area.

Thirty Wirthmore distributors are located within the 50-mile radius to be served by the new facilities.

The all steel bulk station is currently being fabricated by Sprout, Waldron & Co., Muncy, Pa. Finished sections will be shipped to Florin for erection within the next few weeks.

Good Deal for Dealers!



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Efficient Feed Production Is Part of Completely Integrated Poultry Operation in Idaho

From breeder flock to super market—that's the story of Albertson's, Inc., an example of vertical integration which is about as complete as one might expect to find.

This western food store firm operates every phase of a poultry production enterprise and then markets the output through its own stores. In the low margin food business, efficiency is a key factor, and this applies to feed milling as well as the production and processing and sale of the birds.

For some time, Albertson's, which operates 65 super markets, has had a poultry processing plant, the Stone Poultry Co., at Nampa, Idaho. Then, about a year and a half ago, the firm got into poultry production on its own. Part of that move was the construction at Nampa of a new feed plant which turns out 10-12 tons of poultry feed per hour, with only two men required to operate the mill.

The Albertson firm, founded by J. A. Albertson, got its start about 20 years ago as a one-store company in Boise, Idaho. Now the chain of 65 stores serves consumers in five states —Idaho, Washington, Oregon, Utah and Montana. The company's poultry operation provides the stores with more than 1.5 million broilers and 200,000 turkeys a year.

Decided to Integrate

For years, the company purchased chickens and turkeys from growers in its area and then processed them at Nampa. However, the desired quality and steady, uniform supply were not available under this arrangement, and the decision was made to integrate poultry production and feed milling into the firm's over-all operation. This, it was felt, would be more efficient and economical and assure the uniform supply desired.

A hatchery was built in Nampa to provide the baby chicks, and breeder flocks nearby supply the hatching eggs. To produce the broilers, the Nampa operation has 28 houses, each 300 ft. long and 40 ft. wide. The turkey poults are started in brooder houses and then moved to nearby range to be grown out.

After being grown to an age of nine weeks, the broilers go to the Nampa processing plant, and from there the dressed birds are shipped out immediately to the chain of food stores.

The general manager of the poultry division is W. G. Shannon.

Providing the feed for this big poultry production enterprise is a new plant which is adjacent to the hatchery. This plant, operated as Albertson's Feed & Milling, Inc., is managed by Lyle Chase, superintendent.

Specialized Operation

The mill is a batch mixing operation, specializing, of course, in a minimum number of formulas for the firm's own poultry. Output is largely bulk feed. The mill was laid out so that it can be operated by two men. Major ingredients are received and handled in bulk, but ingredients used in lesser amounts are received in bags. After premixing with vitamin supplements, these materials go into bulk work bins over the batching scale.

As illustrated in this picture, grain is ground directly from outside storage tanks. It is moved by screw conveyor (upper left) to the Prater grinder shown here.

A Richardson Select-O-Weigh panel in the control room is being set by Lyle Chase, plant superintendent.

The mill was designed by Reid-Strutt Co., Inc., Portland. This company also supplied and directed installation of the equipment, and arranged for construction of the plant. The builder was Halvorson Construction Co., Spokane.

Among the features of this $250,000 specialized feed mill are the manufacture of a minimum number of formulas, the use of air for receiving and part of the in-plant handling and the delivery of the feed largely in bulk.

The feed plant is of all-steel construction. The mill section is 36 ft. square and 60 ft. high. In addition there is a warehouse for bagged ingredients and any finished feed which is put into bags.

This is the Albertson Feed & Milling plant at Nampa, Idaho, which supplies feed for the big Albertson poultry production operations. The outside ingredient and grain storage tanks are on the right. The mill building and bulk feed loading out tanks are in the center of the picture. On the left may be seen part of the warehouse.

Materials Handling

Incoming bulk ingredients are unloaded at a rate of 17 tons per hour with a 40 h.p. combination suction-pressure air system supplied by Rader Pneumatics. These materials go through a custom-designed rotating distributor ring into any of six outside tanks—four for grains and two for the major soft feeds, including soybean meal. These tanks are Columbian Steel bolted bins, each grain tank holding approximately 100 tons and each soft ingredient bin having a capacity of approximately two carlots. Additional Butler bins for grain storage also have been added.

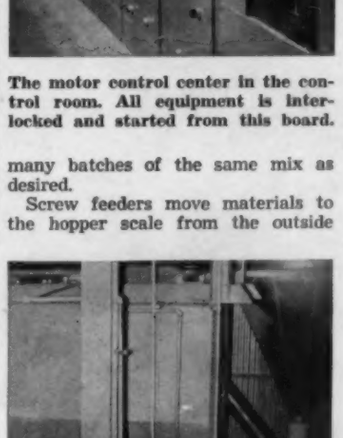
Grains are ground directly from outside storage tanks. The grain goes through meter gates and is conveyed to the 75 h.p. Prater grinder in the basement. The load on the hammermill is set with the meter gates. The screw conveyor shuts off automatically if the mill is overloaded. The ground grain is blown up to any of four steel bins above the hopper scale for batch mixing. The bins are equipped with Binatrols, and the conveyor feeding the grinder shuts off automatically when the ground grain is at the proper level. These ground grain bins are among 10 bins within the mill building, each holding 10 tons.

Some of the soft feeds which are used in lesser amounts are received in bags and then combined with Nopco vitamin and antibiotic premixes in a 1-ton Prater vertical twin-spiral mixer. These mixes are elevated with the plant's one leg, a 4,400 - cu. - ft. - per-hour Strong-Scott elevator, and go through a remotely controlled electric distributor into bins over the hopper scale. Certain soft ingredients, received in bulk, are moved directly to mill bins.

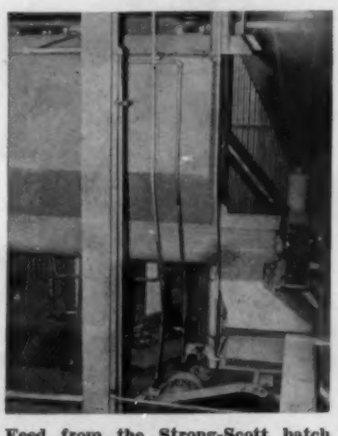
Mixing

A Richardson Select-O-Weigh system is used for proportioning the ingredients into two-ton batches. This is the type of system which will recycle automatically and make as many batches of the same mix as desired.

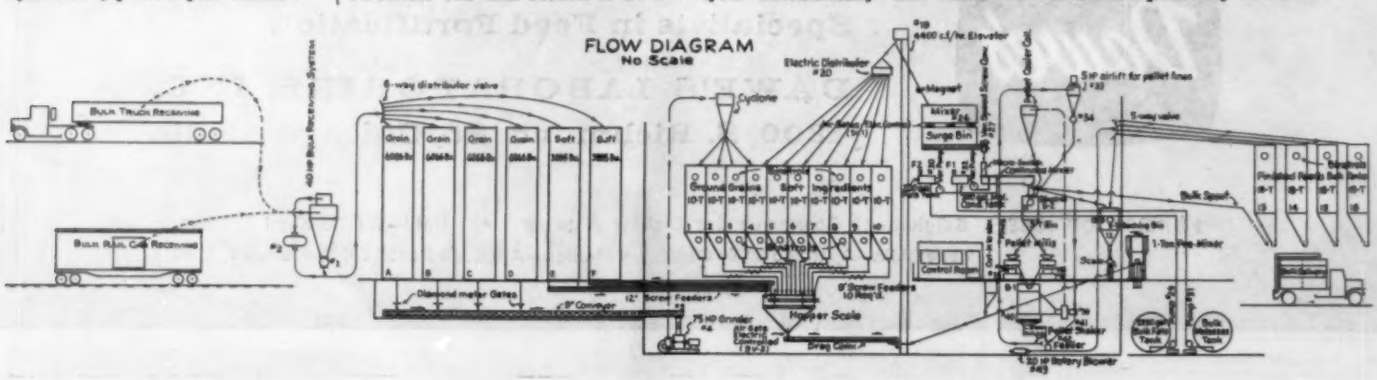
Screw feeders move materials to the hopper scale from the outside



The motor control center in the control room. All equipment is interlocked and started from this board.



Feed from the Strong-Scott batch mixer drops into this surge bin and then is fed into a continuous mixer in which liquids may be added.



The tops of four outside bulk tanks for finished feed are seen here. The finished pellets are conveyed pneumatically to these bins.

Pellets are made on two 50 h.p. Oliver units. These are located adjacent to the control room.

soft ingredient bins as well as from the 10 mill bins.

Controls for both the batching system and other mill facilities are centrally located in a control room so that one man can direct the entire handling and processing operation.

A completed batch is moved from the hopper scale by drag conveyor to the elevator leg and raised to the 2-ton Strong-Scott horizontal batch mixer at the top of the mill. The mixed feed drops into a surge bin and then is fed into a Strong-Scott continuous mixer in which molasses or fat is added. The liquids are metered into the continuous mixer from 200-gal. work tanks in the plant. The fat storage tank is in the boiler room and the molasses storage tank is in the basement of the mill.

From the continuous mixer the feed may be loaded out in bulk or dropped into a sacking bin or into a bin over the two 50 h.p. Oliver pellet mills. A Binatrol in this bin is used to control the system.

Pellets from both mills drop into a Strong-Scott vertical cooler and then go over a Strong-Scott Power-Flow shaker. Fines are returned to the pellet bin with a negative pressure pneumatic unit. The finished pellets are elevated with a 20 h.p. positive pressure Rader pneumatic system and directed into the sacking bin or into any of four outside bulk tanks. These are 18-ton Columbian Steel tanks located over a 60 ft. Fairbanks-Morse truck scale.

The mash handling and processing equipment is interlocked with the batching facilities so that the system will stop automatically if required.

The bulk finished feed goes out in bulk trucks to the Albertson brooder houses and turkey range.

The entire mill operation, said Mr. Chase, requires a minimum of labor, and the control system also assures accuracy in production of the critical feeds required for modern poultry production. He noted that efficiency in feed production as well as in other phases of the poultry operation is a vital factor in today's integrated business.

California Grain Trade Moving to Inland Areas

STOCKTON, CAL.—With the closing on April 30 of the Los Angeles Union Stock Yards, only a few months after the demise of yards in San Francisco, the shift of grain business to Stockton is expected to increase rapidly. The city has outstripped larger California cities in this respect and the Stockton Grain Exchange has become one of the two most important on the Pacific Coast.

A grain specialist is expected to be appointed soon for the Stockton area by the Federal-State Market News Service, with the new operation to start probably about the beginning of the new fiscal year, July 1.

Norman Munson, grain specialist for the Market News Service in Sacramento, recently conducted an area survey of the San Joaquin and Sacramento valleys. The results of this survey, according to Edwin A. Kauppila, manager of the Stockton Exchange, confirm the fact that the grain business has definitely moved inland from the immediate San Francisco area.

In the early days, grain produced in the two valleys was shipped to San Francisco Bay area points, and consequently San Francisco became the grain trading center for northern California. Due in part to the rise in transportation costs, traffic congestion, and the relocation of feed manufacturing plants and feed lots, the current trend in California, according to Mr. Kauppila, is to feed the grain where it is produced. Most of the major grain trading firms have moved inland to follow this business.

Looking from the first floor into the basement area, with the hopper scale on the right.

RUDY ESCHENHEIMER COMPANY

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Why this little chick went to market *

(WHILE ITS BROTHERS AND SISTERS STAYED HOME)

*The Secret is CLINTON CFS concentrate #3

University tests prove that CFS Concentrate #3 stimulates rapid growth at a cost considerably under most other sources of UGF (unidentified growth factors). In controlled experiments broilers, turkeys and swine gained weight faster with CFS #3's formula of Condensed Fermented Corn Extractives dried on selected by-products from the corn wet milling industry. It is free-flowing, and handles well in bulk shipments. Test and formula data are available on request. Why not try CFS Concentrate #3 today?

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CLINTON CORN PROCESSING COMPANY

CLINTON, IOWA

USDA Issues Leaflet On Use of Chemicals

WASHINGTON—The U.S. Department of Agriculture has issued a leaflet pointing out the responsibilities of livestock producers in the safe use of agricultural chemicals. The leaflet is headlined, "Mr. Livestock Producer . . . It Pays to Use Chemicals Safely."

The leaflet tells the producer that "by using recommended procedures, you can guard against harmful residues that would make your products illegal for sale.

"Consumer confidence is vital to you and the entire industry," it goes on.

"Avoiding harmful residues in animals you raise is your responsibility," says the leaflet.

"Laws protect consumers of meat from harmful residues. These laws also protect you, by requiring that manufacturers give specific instructions on the label for the safe use of pesticides, drugs, feed additives and other chemicals.

"These instructions are based on:

"(1) Safe dosage levels.

"(2) Proper mixture of materials used.

"(3) Safe methods of use.

"(4) Safe time intervals between application of materials and slaughter, to insure elimination of residues.

"You can get the benefit of farm chemicals, protect your customers and fulfill your own responsibilities, if you follow a few simple rules," says the leaflet.

The rules are listed as:

"(1) Carefully read and observe to the letter all instructions on the label.

"(2) Accurately measure and thoroughly mix ingredients.

"(3) Use exact prescribed dosages.

"(4) Follow recommendations as to type, age and condition of animals treated.

"(5) Use prescribed methods of administration.

"(6) Observe required time intervals between treatment and marketing of livestock.

"(7) Implant or inject materials only in recommended locations on the animal's body.

"(8) Guard against pesticide contamination of drinking water, feed and utensils.

"(9) Observe safety precautions to avoid harmful effects to persons administering chemicals.

"(10) Be sure that forage has been treated only with permitted pesticides.

"(11) Feed treated forage only as recommended."

ELEVATOR DESTROYED

TEMVIK, N.D. — Fire destroyed the Temvik Farmers Elevator, causing damage estimated at $80,000.

Maryland Forage Evaluation Plan Set

COLLEGE PARK, MD.—Livestock producers of Maryland will soon be able "to feed their stock more scientifically than heretofore," according to a new program announced by the University of Maryland.

The program will be called the Forage Evaluation Program. It will get underway officially on July 1. Thus, this year's forage crops can be sampled, evaluated and the results will be on hand for next winter's feeding period, according to Dr. James L. Cason, extension dairyman, University of Maryland College of Agriculture.

Actually, there will be two types of forage evaluation programs available to livestockmen. Program I will include a comparison of a producer's forage with similar forages of known feeding value based on the kind of plant, or plants, in the sample; date of harvest; number of harvests; maturity at harvest, and the method of preservation. Moisture will be determined for each sample of silage.

Program II will include everything in Program I, plus chemical tests for protein and crude fiber content of the forage, Dr. Cason explains.

Under the program, forage samples to be tested will be handled through the county extension agent's office. After the feeding value of the forage has been determined, feeding recommendations to be used by producers will also be handled by the county agent.

New Grain Company Formed in California

STOCKTON, CAL.—A new grain company in the Stockton area has been formed by Francis B. Young, who has been in the grain trade for some time. The firm's name is the F. B. Young Grain Co.

Francis Young

For the past 14 years Mr. Young has been associated in partnership with George Eales in the Eales-Young Grain Company, which was dissolved recently.

Record Egg Volume Reported by Nulaid

SAN LEANDRO, CAL.—A record 63 million doz. eggs worth $23 million were handled by the Nulaid Farmers Assn. in 1959, L. N. Thompson, general manager, reported at an annual meeting here this week.

A total volume of $52 million in feed and farm production supplies purchased and eggs and poultry sold was registered by the association last year, Mr. Thompson added.

Nulaid, formerly known as Poultry Producers of Central California, operates two egg packing plants, five feed mills and 41 branches in northern and central California.

Now all from one unit...
EVERY Major Type FEED in Demand Today!
HARD PELLETS
(with or without liquids)
WENGERBLENDED MASH FEEDS
(one or two liquids)
HI-MOLASSES PELLETS
(optional)
Wenger's NEW
MULTI-DUTY PELLET MILL
(50-75 H.P. or 100-125 H.P.)
Shown above is Hard Pellet Mill
Shown right with Molasses Pellet Head (Takes 15 minutes to change to Molasses Pellets.)
Can produce mash feeds between pellet runs (1 minute change)
Versatility-

Versatility available only with Wenger Multi-Duty means maximum utilization of manpower, horsepower, and equipment every minute of every working day. Minimum investment in a single Wenger-built unit capable of producing every major type of feed in demand today... Hard Pellets... Pellets with Wengerblended Liquids... Mash Feeds with one or two liquids... Hi-Molasses Pellets.

The same motors, starters, and cooler for every type of pellets or mashes. Single or multiple liquid application is optional equipment, but liquid conditioning tank, steam coils and liquid plumbing is standard equipment built into every Wenger Multi-Duty. Feeder extension is optional equipment so Multi-Duty can be fed from either of two overhead bins for one minute formula change or change to mash feeds.

BASIC INSTALLATION:
Hard Pellet Mill and Cooler

Optional processing equipment available with initial installation—or later—for complete Multi-Duty operation:

1. Meter Flow Pump for Molasses MASH FEEDS
2. Second Meter Flow Pump for MULTI-BLENDING
3. Conversion Extruder for HI-MOLASSES PELLETS

Write or Phone TODAY

Wenger Mixer Mfg. Co.
Standard of the Industry for Liquid Feed Mixing, Pelleting and Cooling Equipment.

Feed nutrients
BLOMFIELD-SWANSON
MINNEAPOLIS

Use Feedstuffs WANT ADS for RESULTS

REPLACE DRIED WHEY POUND FOR POUND WITH *Borden's* MG AT $4.86 PER CWT.*

Borden's special blend of whey factors from Milk and Grain flows freely—doesn't cake, dust or take up atmospheric moisture. High in protein, low in lactose (6-7%), for standardized whey factors activity at lowest cost, there is nothing to match it! (And have you tried it as carrier for your pre-mix?)

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Laboratories and Test Farms at Elgin, Illinois

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FEED SUPPLEMENTS DEPARTMENT
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MUrray Hill 7-4100

FDA Proposes New Labeling Regulation

WASHINGTON — The Food and Drug Administration has proposed a new regulation regarding labeling of preparations intended for use in dairy animals.

In the notice, the commissioner proposes to issue a regulation requiring certifiable antibiotic drugs intended for use in dairy animals, and which are administered intramuscularly or intravenously, to bear a specific warning, in order to prevent milk taken from such dairy animals so treated from entering the milk supply. The proposed regulation is based upon the following information in possession of the Food and Drug Administration:

"During the past few years, the quantities of the various antibiotic preparations certified for use in prevention and treatment of infections of dairy animals by the intramuscular and/or intravenous routes of administration have increased substantially. For example, the quantity of the combination drug penicillin and dihydrostreptomycin (dry and in suspension) certified for use in animals by injection has steadily increased since 1955. In that year, the batches certified contained a total of approximately 1.4 trillion units of penicillin and 2.7 million gm. of dihydrostreptomycin. In 1956, 1957, 1958 and 1959, they contained approximately 3.8, 6.4, 13.9 and 34.2 trillion units of penicillin and 7.4, 9.2, 20.2 and 48.1 million gm. of dihydrostreptomycin, respectively.

"Not only are more animals receiving antibiotics by injection, but substantially larger amounts of the drugs are administered per dose. Although the labeling for most of the penicillin-containing drugs recommends for injection of large animals a daily dose of from 2,000 units to 4,000 units per pound of body weight of the animal, doses up to five times the lower recommended dose are commonly used.

"Detectable Amounts"

"When a dairy animal is injected with sufficient quantities of antibiotic preparation, detectable amounts of the drug are excreted through the animal's milk. The amount of drug excreted and the time of excretion depend upon the quantity of the drug administered per dose and the number of doses, as well as on the kind of preparation injected. Thus the practice of injecting dairy animals with antibiotic preparations may result in the presence of these drugs in the milk supply unless the milk from treated animals is discarded for an appropriate time.

"Although the length of time that each antibiotic will persist in milk of dairy animals treated with various dosages and kinds of antibiotic preparations by injection has not been definitely determined, from the administration's experience with this class of drug, residues of some drugs may persist for days after the latest injection. Therefore, in the interest of the public health, this potential portal of entry for antibiotics in the milk supply must be closed, and to do so, users of these drugs must be informed through appropriate labeling. Therefore, the commissioner proposes to amend the regulations for the certification of antibiotic and antibiotic-containing drugs (21 CFR, Part 146) by adding thereto, the following new section:

"146.14. Antibiotic and antibiotic-containing drugs intended for use in the prevention or treatment of infections of veterinary animals by the intramuscular or intravenous route; labeling. Whenever the labeling of an antibiotic drug included in the regulations in this chapter suggests or recommends its use in the prevention or treatment of infections of veterinary animals by the intramuscular or intravenous route of administration, the label of such drugs shall bear either the statement 'Warning: Not for use in dairy animals since this use will result in contamination of the milk with the antibiotic' or the statement 'Warning: Milk taken from treated dairy animals within .. hours after the latest injection must not be used for human consumption,' and the blank has been filled in with that figure which shall not be greater than 96, which the commissioner has authorized the manufacturer of the drug to use. The commissioner shall determine what such figure shall be from information submitted by the manufacturer which the commissioner considers adequate to prove the time after the latest injection that the milk from treated animals will contain no residue of the antibiotics."

Persons who may wish to submit their views on the notice may do so in writing to the Hearing Clerk, Department of Health, Education and Welfare, Room 5440, 330 Independence Avenue SW., Washington 25, by May 9. Written views and comments should be filed in quintuplicate.

Whitmoyer Sales Unit Expanded, Realigned

MYERSTOWN, PA. — "The steady increase in the number of Whitmoyer dealers has necessitated another expansion in the sales organization and a realignment of several sales territories," reports C. W. Whitmoyer, president, Whitmoyer Laboratories, Inc.

Ronald Myers, who has represented Whitmoyer in the Shenandoah Valley area for the past several years, has now been put in charge of sales in the south central states. His headquarters is Memphis, Tenn. Warehouse stocks of Whitmoyer products will be set up in Memphis to supply Whitmoyer pharmaceutical and nutritional products to the poultry, ani-

You can sell best

...and customer satisfaction "comes in Burlap!"

Have you ever added up the inducements you can offer when you sell sacked feed in burlap? They can help you in selling. Here they are:

1. *A discount* on every ton of feed, when the mill provides a return-bag program.
2. *Simplified inventory* for the customer.
3. *Identification* for medicated feeds.
4. *Non-separation* of formula-ingredients.
5. *Your prices* are competitive with returnable burlap bags.
6. *Service*...you can give small customers as good delivery service as large customers (and on the same route).
7. *Bulk customers* can be served with bag-to-bulk trucks.
8. *Quantities* can be bought *as needed*.
9. Feed in burlap bags is *sanitary and free from contamination*.
10. *Accurate weights* are assured in a burlap bag.
11. *Fifty-pound* as well as 100-lb. bags can be offered.
12. Farmers have many uses for empty bags...only burlap serves them so well!

Quite a few selling-points, don't you agree? Next time you're selling a new customer, remember there's a lot to be said for burlap bags!

Just ask your own customers—they'll tell you that burlap

Is strong — takes dragging, dropping, *mis-handling* — any tough job on the farm.

Laughs at sudden showers — wetness or dampness can't weaken it.

Saves money — extra value from re-sale and re-use.

Gives good ventilation — keeps farm supplies and products fresh.

Saves storage space — stacks to any height without slipping.

Has 1000 uses — always in demand on the farm (popular with farm wives, too!)

MARCO Feeding Grade TALLOWS

Quality tallow from one of the largest animal fat processing plants in the Southwest. Guaranteed specifications in all grades of fats.

Call collect anytime for quotations — MA 6-2803

MARCO CHEMICAL COMPANY
P. O. BOX 8 • FORT WORTH 1, TEXAS

mal and feed industry in that area.

John Stevens has replaced Mr. Myers in the Virginia area. Mr. Stevens, who has a background of considerable experience in the poultry business, will make his home in Harrisonburg, Va.

Glenn Rohr, who has represented Whitmoyer in sections of Pennsylvania and New Jersey for a number of years, will now also handle the Delmarva area. Mr. Rohr's home is in Doylestown, Pa.

In the deep south, James Hardy, a former county agent and feed company representative, is now with Whitmoyer. He will work primarily in South Alabama and South Georgia, Mr. Hardy lives in Dothan, Ala.

Bernard Mangum, Rock Hill, S.C., will serve as representative in South Carolina. Mr. Mangum had been connected with various phases of the poultry and feed business prior to joining Whitmoyer.

The latter two men will work out of the Whitmoyer Laboratories of Dixie, Inc., headquarters in Gainesville, Ga.

Exhibit Space Sale Opened by NEPPCO

TRENTON, N.J.—Taking its cue from the economic storms that have battered the poultry industry during the past year, the Northeastern Poultry Producers Council has launched the sale of exhibit space for its annual exposition with the theme, "Chart Your Poultry Future."

The exposition and annual convention will be held in the War Memorial Auditorium, Syracuse, N.Y., Oct. 4-6. This will mark the first return to the Empire State poultry area since 1956.

"The selection of the seagoing slogan for this year's show was no accident," commented Doris Endebrock, exposition manager. "The northeastern poultryman is in a period when his course must be as carefully plotted as that of any steamer or plane."

In keeping with today's "stormy poultry economic seas," the Council's exposition staff is carefully mapping a completely refitted educational program, special features and demonstrations.

The War Memorial Auditorium is a modern exhibition center, with ample parking areas and close proximity to Syracuse hotels. All are within walking distance of the building.

Exhibit space reservations, which begin on May 1, should be directed to Miss Endebrock at NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

Feed Company Formed

ESCALON, CAL. — Hashem Naraghi, feed and grain dealer in the Stockton area, has formed a new company, Security Feeds, Inc. First plans for the new concern are for the construction of a feed mill in Escalon.

Pennsylvania Co-op Studies Contracting

HARRISBURG, PA.—Since establishment of procurement and distribution divisions of the Pennsylvania Farm Bureau Cooperative in February, careful study of each of the Farm Bureau's service functions is being made, according to George Connor, general manager.

He explains one of the service functions receiving lengthy and serious consideration is that of contract feeding programs.

"We recognize that many farmers today own facilities but are unable to finance production through regular channels," Mr. Connor says. "This is particularly true in the area of broilers, layers, dairy and beef cattle and hogs.

"The need makes it obvious that Farm Bureau must have adequate programs in contract feeding. These services ultimately will be offered through our distribution division."

Need for the careful studies was attributed to the "disastrous results" suffered by the entire broiler industry as a result of quickly devised programs in the past. "Naturally," Mr. Connor said, "we must avoid any similar mistakes in the future.

"Thus, any programs the Farm Bureau develops for the future will be designed to serve needs," he said. "They must be well controlled and operated under sound financial procedures. Purpose of the programs will be to provide services for farmers who have proven their skills in farming and who have exercised sound judgment in their business.

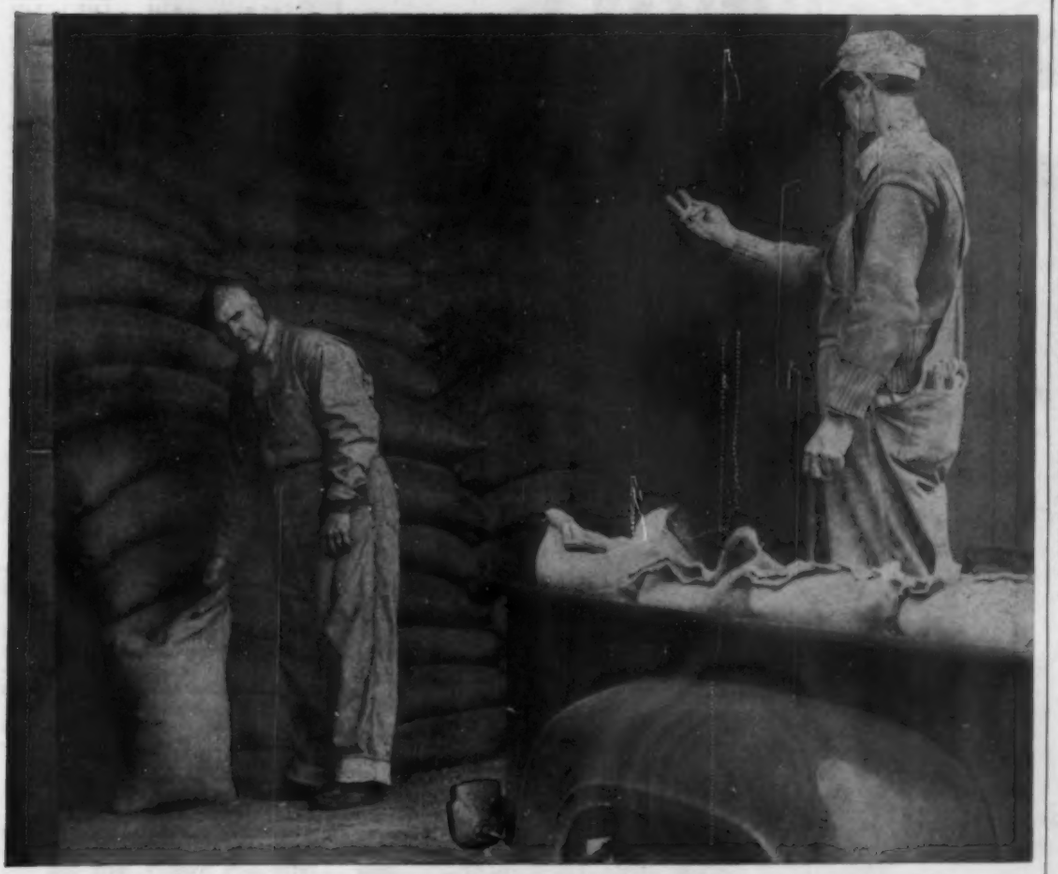
"Above all, any contract feed programs offered by Farm Bureau must be guided by sound management," the general manager cautioned.

"If all these attributes are embodied in the program, and especially if we are certain all controls are working, contract programs can be good business," he said. "Having gained by our past experiences, I'm sure Farm Bureau can keep abreast of the ever-changing times to provide needed and worthwhile programs in the future."

MILLING FIRM FORMED

NEW GLARUS, WIS.—Articles of incorporation have been filed for the Wally & Disch Milling Co., Inc., New Glarus, for the sale of feeds, seeds and other types of agricultural supplies. The initial agent is Walter G. Niedzwiecke, and other agents are Jacob S. and Rolland P. Disch.

what serves best!



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- Because it's bolstered by Special Feeding Guides for dogs, pigs, calves and other small animals!
- Because it's another tested and proved product of Allied Mills, makers of dependable Wayne Feeds!

Learn more about "More For Your Money" Wayne Dealer opportunities. Write Allied Mills, Inc. Service Offices, Fort Wayne 1, Indiana

WAYNE FEEDS

USDA Report Shows Number of Turkeys Raised in 1959 Up 5%

WASHINGTON—The U.S. Department of Agriculture's annual report on turkey production in the U.S. shows that the number of birds raised in 1959 was up 5% over the 1958 total. The 1959 total, 82.1 million, is 1% more than the previous record established in 1957.

The increases in numbers raised of 20% in the west north central states and 9% in the east north central more than offset the decreases recorded of 7% in the south central, 6% in the north Atlantic, 5% in the west, and 1% in the south Atlantic states.

Minnesota led in 1959 production of turkeys with 13.4 million birds. Other top ranking states include: California, 12.8 million; Iowa, 8 million; Virginia, 6.7 million; Wisconsin, 4 million; Texas, 3.8 million; Missouri, 3.6 million; Ohio, 3 million, and Indiana, 3 million.

The west north central states, the largest producing area, raised 35% of the turkeys in 1959. Ratings of other areas include the west, 23%; east north central, 15%; south Atlantic, 14%; south central, 9%, and north Atlantic, 4%.

Breeds Raised: Turkey growers raised 66.6 million heavy breed turkeys in 1959—1% more than in 1958. Heavy white breed turkeys accounted for 27% of all heavy breed turkeys raised. Growers raised 15.5 million light breed turkeys—an increase of 27%. Of the turkeys raised in 1959, 81% were heavy breeds and 19% light breeds.

Turkey Sales: Turkeys sold in 1959 totaled 81.4 million—6% more than in 1958. Growers indicated that the proportions of turkeys sold as fryer-roasters were 77% of the light breeds, about 31% of the heavy whites and 1% of the other heavy turkeys.

January 1 Breeder Hen Holdings: Holdings of heavy breed turkey hens on Jan. 1, 1960, totaled 3.0 million birds—a decrease of about 3% from the previous year. The number of light breed hens totaled 420,000—a decrease of 30%. The number of all other turkeys (market birds and breeder toms) on hand Jan. 1, 1960, at 2,237,000 was 1% above a year earlier.

Prices: The average price received for turkeys sold in 1959 was 23.9¢ per pound live weight, same as the average price received in 1958. Prices during the first 10 months of 1959 averaged lower than a year earlier; however, turkey prices advanced to a higher level in November and December.

Cash Receipts: Cash receipts from the sale of 1,379 million pounds live weight of turkeys in 1959 totaled $329 million—5% more than in 1958.

Death Loss: Loss of poults in 1959 was 8.9% of those started, compared with 8.6% in 1958. Loss of breeding stock as a percent of breeders on hand Jan. 1 was 5.5%, compared with 6.6% in 1958.

Turkey Production 1959

State and division	Raised* Heavy breeds	Raised* Light breeds	Raised* Total
	(000's omitted)		
Maine	50	2	52
New Hampshire	122	0	122
Vermont	56	0	56
Massachusetts	417	8	425
Rhode Island	25	2	27
Connecticut	234	2	236
New York	583	11	594
New Jersey	142	13	155
Pennsylvania	1,199	101	1,300
N. Atlantic	2,828	139	2,967
Ohio	1,944	1,042	2,986
Indiana	2,253	731	2,984
Illinois	1,042	118	1,160
Michigan	730	200	930
Wisconsin	3,872	127	3,999
E. N. Central	9,841	2,218	12,059
Minnesota	11,715	1,646	13,361
Iowa	6,684	1,345	8,029
Missouri	3,125	440	3,565
North Dakota	773	18	791
South Dakota	698	77	775
Nebraska	1,033	45	1,078
Kansas	737	88	825
W. N. Central	24,765	3,659	28,424
Delaware	132	335	467
Maryland	200	43	243
Virginia	1,581	5,115	6,696
West Virginia	252	785	1,037
North Carolina	1,535	218	1,753
South Carolina	742	40	782
Georgia	311	4	315
Florida	181	279	460
S. Atlantic	4,934	6,819	11,753
Kentucky	357	6	363
Tennessee	91	36	127
Alabama	141	56	197
Mississippi	174	71	245
Arkansas	1,511	363	1,874
Louisiana	31	0	31
Oklahoma	858	155	1,013
Texas	3,109	680	3,789
S. Central	6,263	1,367	7,630
Montana	24	4	28
Idaho	195	45	240
Wyoming	4	1	5
Colorado	1,272	14	1,286
New Mexico	78	5	83
Arizona	103	0	103
Utah	2,314	323	2,637
Nevada	1	0	1
Washington	555	14	569
Oregon	1,243	214	1,457
California	12,161	660	12,821
West	17,950	1,280	19,230
U. S.	66,581	15,482	82,063

*Does not include young turkeys lost.

Canadian Gets PENB '59 Research Award

CHICAGO—Prof. Earle S. Snyder of Ontario Agricultural College, University of Toronto, a Canadian poultry scientist and specialist in the field of poultry products research, received the 1959 Research Achievement Award of the Poultry and Egg National Board at its 20th annual meeting.

The Research Achievement Award has been presented annually since 1955 to recognize outstanding achievement in the fields of poultry products technology and marketing and to encourage research toward increased consumption of eggs and poultry meats.

ELEVATOR BURNS

RIPPEY, IOWA—Fire destroyed the Rippey Farmers Cooperative Elevator here recently, with loss estimated at $140,000-$150,000 according to Richard Nail, elevator manager. The main elevator and two feed warehouses were completely destroyed.

Add Schenley's Corn Distillers Dried Grains with Solubles to your Dairy Cow mix

MOTHER KNOWS BEST

She knows that her calf is well taken care of if the SCHENLEY's SOLUDRI is part of the feed-manufacturer's milk replacer.

Dairy cows also like SCHENLEY's CORN DISTILLERS DRIED GRAINS WITH SOLUBLES as a popular protein supplement. It is a favorite ingredient in concentrate mixture for cattle. Both SCHENLEY's SOLUDRI and CORN DISTILLERS DRIED GRAINS WITH SOLUBLES include GFF, the Grain Fermentation Factor. They are always fairly and realistically priced. Write or wire to-day.

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VITAMIN FORTIFY YOUR OWN FEEDS with JERSEE

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Contains necessary Vitamins, Antibiotics, Amino Acids and Trace Minerals to Vitamin Fortify your feeds for only a few cents a bag.

VITAL-MIN for Poultry LAS-O-MIN for Cattle MIN-O-LAS for Hogs

CAP-SUPP
A dependable body building feed containing guaranteed levels of Vitamins A-D and Agromycin. Simple and economical to feed. Assures guaranteed feeding results.

PRE-CAP-SUPP
A COMPLETE MILK REPLACER WITH SWEET MILK SOLIDS—fortified with Agromycin to help prevent scours and minor digestive disturbances. Packaged in 25 and 50-lb. bags.

WRITE FOR DEALERS' SALES HELPS!

THE JERSEE CO. MINNEAPOLIS, MINNESOTA

This "PROTECTION TEAM"

—Assures Lasting Immunity Against Coccidiosis —Saves You up to $7.50 Per 1000 Birds

LASTING IMMUNITY TO COCCIDIOSIS requires exposure and control!

The "PROTECTION TEAM" of CocciVac and a recommended coccidiostat, such as Trithiadol®, assures *both!*

CocciVac*, a coccidiosis vaccine, provides a measured exposure through vaccination . . . Trithiadol, the superior, time-tested coccidiostat by Sterwin, protects while immunity is developing.

Yet this solid, active immunity saves you up to $7.50 per 1000 birds over the use of a coccidiostat alone.

WITH "PROTECTION TEAM" IMMUNITY...

BROILER GROWERS avoid costly mortality and weight loss caused by coccidiosis. REPLACEMENT GROWERS get protection against coccidiosis in later growth period and laying cycle.

*COCCIVAC is the registered trademark of Dorn and Mitchell Laboratories, Inc.

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Please send me complete data on PROTECTION TEAM IMMUNITY against coccidiosis.

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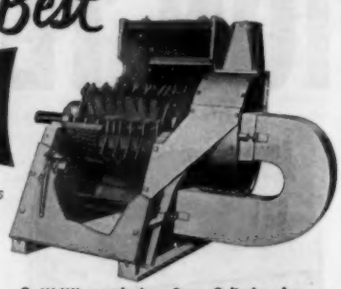
ORIGINATORS OF HARD SURFACE HAMMERS



1. No pre-crushing of ear corn is required.
2. W-W has many quality features as well as a grey cast iron frame that resists corrosion and won't rust; gives exceptionally long life. Hammers are hard-surfaced with Tungsten Carbide.
3. W-W's exclusive Star Cylinder has a unique design that requires much less power than competitive makes.
4. W-W has been producing quality mills for over 50 years. Original mills are still in use.
5. Prices are lower than most makes with inferior quality. Here are representative prices:*

Model	HP	Feed Opening	Price *
F-25M Gooseneck	40	18"	$ 697.04
F-27M Gooseneck	75	24"	$1665.86
F-29M Gooseneck	100-150	36"	$2183.98

Other Models from $154.00 to $408.16. * All prices f.o.b. factory. You get the best hammermill available. Write for catalog and ask about convenient time-payment plan.

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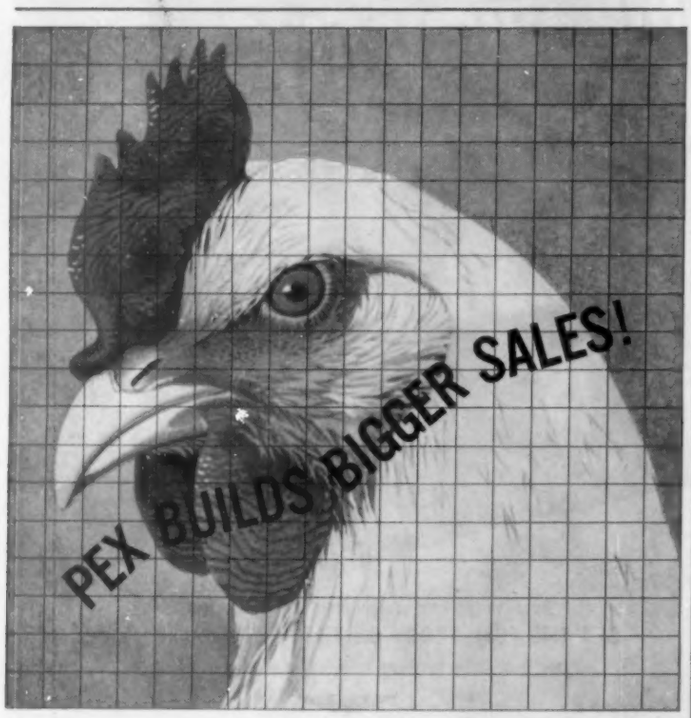

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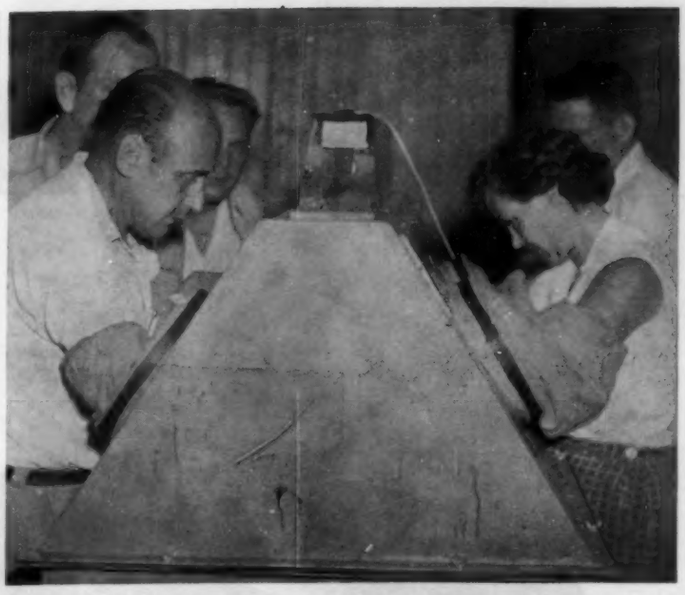

PIGS IN HOG HOOD—Dr. Combs (left, foreground) and his wife reach into the hog hood into which pigs in the uterus have been placed. They look through the windows to see what they are doing. The pigs now will be put into a transfer box, then into a station wagon and taken to the C. & G. Laboratories about three miles away where they will be placed in an incubator.

Feed Man and Veterinarian Provide Disease-Free Pigs

By Al P. Nelson
Feedstuffs Special Writer

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The new firm is housed in a 24 by 64 ft. building adjacent to the Green Products Co. and is fully equipped with individual incubators for baby pigs, as well as sanitized brooders.

The process followed by C. & G. Laboratories is mainly that perfected by the University of Nebraska Experiment Station in 1958, 1959.

Farmers who have sows which are due to farrow can turn a sow over to the C. & G. Laboratories and get back, at the end of four weeks, pigs which are free of atrophic rhinitis and virus pneumonia, two of the diseases which greatly affect swine mortality. Nebraska experiments have shown that the disease-free pig program reduced mortality from 30.6% to 8.3% in many litters.

To get a disease-free four-week pig from the C. & G. Laboratories, the farmer currently pays $42 per pig. With such disease-free pigs, he can begin to build a disease-free herd, raising his pigs under normal conditions, but constantly taking disease precautions.

Here is how the program works:

According to researchers, nature has provided tools by which man can obtain disease-free pigs from gilts and sows even though they come from diseased herds. The pig, at birth, is free of disease. He lacks, however, the antibodies or the protective substances which he needs to survive in his natural environment and normally depends upon colostrum to supply them. The pig can survive without colostrum, provided he is placed for the first week of his life in an environment that will protect him from disease germs.

Perform Hysterectomy

C. & G. Laboratories obtains disease-free pigs from their dam 2-4 days before they would be farrowed.

REMOVING THE UTERUS—This is the uterus containing the baby pigs being removed from the sow.

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PARTNERS IN FIRM—Dr. B. O. Combs (left) and Clifford Green, partners in the firm, stand in the main room of C. & G. Laboratories discussing feed and pigs. The firm handles Pillsbury feeds.

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The pigs are quickly torn out of the uterus so they may breathe air rather than the fluid in which they are naturally suspended. Air in the hood has been filtered so it contains no germs. The pigs are then trans-

PIGS TRANSFERRED—After one week to 10 days in the incubators, the pigs are transferred to a pig brooder room. Here Mrs. Combs holds up a pig which she has taken from one of these brooders.

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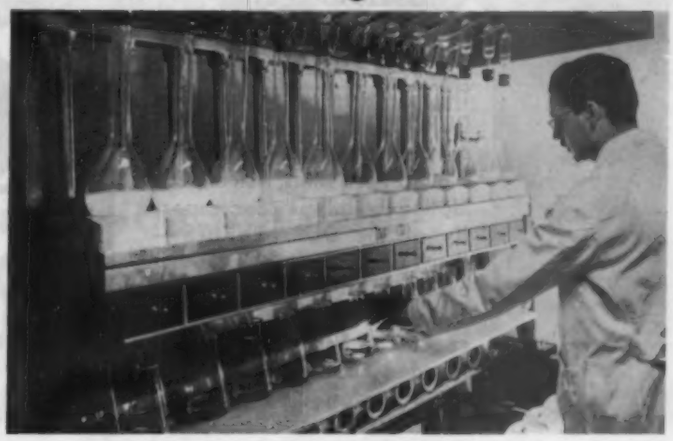
A Feed Laboratory is an *investment* in Progress



You've heard it time and time again. "A company can't stand still . . . it's either forward, or eventually backward." How about your company? Are you planning for progress. A modern laboratory in your plant marks you as a progressive manufacturer. It offers you this important value, plus much more.

For instance, it has been estimated that accurate, in-plant determination of protein content at the time of mixing can save from $1 to $2 a ton on the cost of finished feeds. A modern laboratory also gives you tools for research of your own.

Laboratory Construction Company is the world's leading manufacturer of Kjeldahl apparatus for protein determination, heart of any feed laboratory. We also manufacture virtually all of the related apparatus and furniture you need for a completely modern and efficient feed laboratory. Why not drop us a line today. Just give us a general idea of your present set-up. We'll be happy to submit plans and cost estimate. No obligation on your part, of course.

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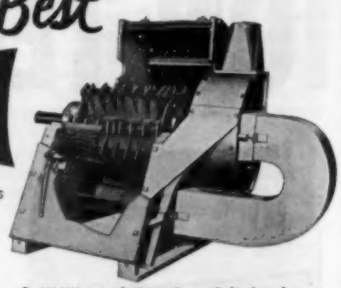

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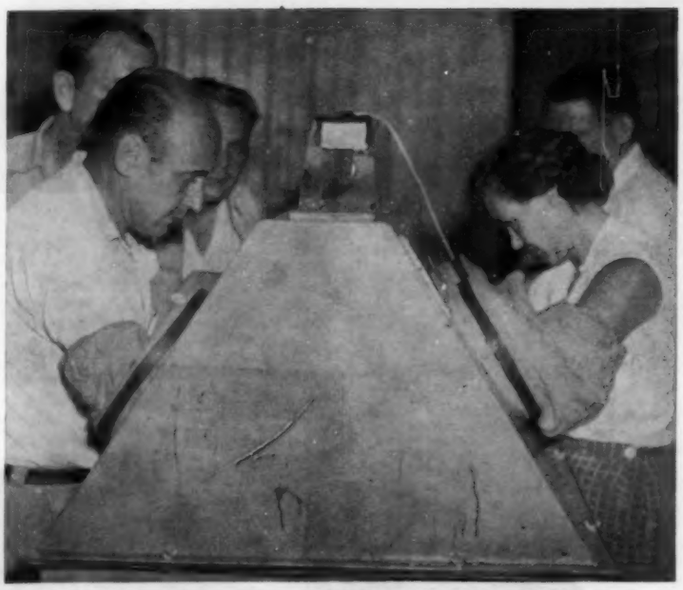

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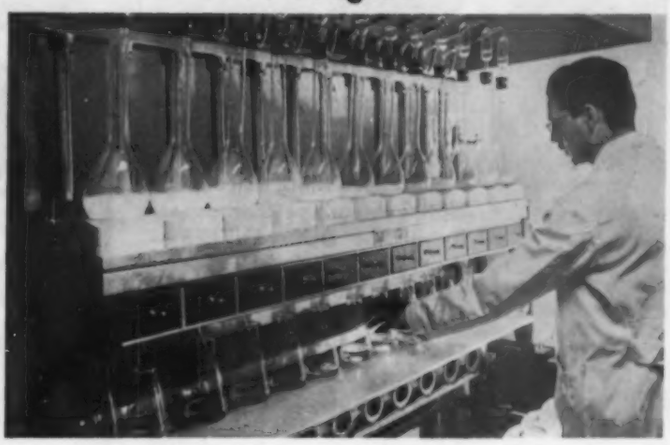

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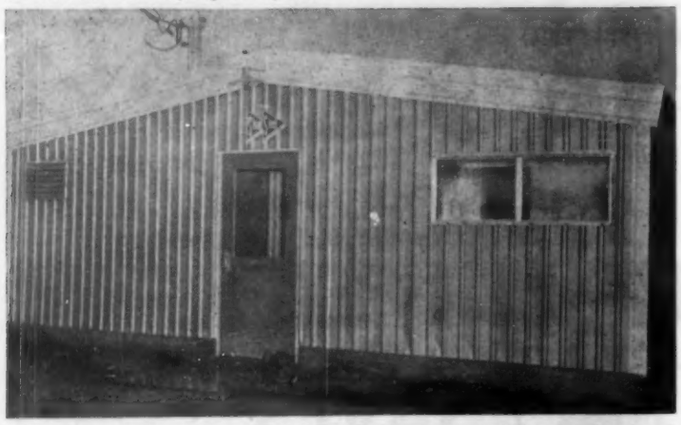


C&G BUILDING—This is the C. & G. Laboratories building on the Green Products Co. grounds. Clifford Green and Dr. Combs are partners in the firm.

ferred under cover to special boxes and taken to the C. & G. Laboratories by station wagon.

Here each pig is placed into a sanitized incubator. Each incubator has constantly filtered air, which is drawn from the incubator by means of an exhaust fan. The temperature of the incubator room is kept at a constant 95 during the one week in which the pigs are in separate incubators.

A Mueller Gas Furnace is used to bring heated air into the incubator and other rooms at 70° and electric heat then brings the incubator room temperature to 95°. C. & G. Laboratories currently has 48 incubators in service.

Each incubator is equipped with a small feedbox into which a formula is placed. This formula consists of 1 qt. of milk, one egg, 5 cc mineral mix and 1 cc Vit K mix. Each pig receives one-eighth qt. of this mix daily.

After the first week, the baby pigs are taken out of the incubators and placed into a room where there are brooders. Each brooder contains from 8-12 pigs. Here the temperature is kept at 85° and the air is also filtered.

In the brooders, the baby pigs learn to eat solid feed and to drink water. The milk part in the formula is gradually cut down and dry feed is added. This formula holds through the second and third weeks. During the fourth week, the milk is eliminated from the feed program and the baby pigs are given all the dry feed they can eat.

At this point, the pigs are adapted to farm-type management.

From this point on, the hog farmer who purchases disease-free pigs can begin to build a disease-free herd. Naturally, says Mr. Green, the man interested in such a herd will be the large, pure-bred hog raiser, or the farmer who wishes to cut the disease loss in his herd. The purchaser of a disease-free pig needs to put them in premises uncontaminated by any other herd of hogs for a period of at least six weeks, and he also needs to keep the premises very sanitary.

Gives Advantages

Dr. Combs points out that the hog raiser who has a herd of disease-free pigs (rhinitis and virus pneumonia) will get better feed efficiency, for healthy pigs eat better than sick pigs. Also by cutting down mortality, the hog raiser can increase his production. C. & G. disease-free pigs, Dr. Combs states, "do not need antibiotic or iron shots. Like all other pigs, however, they need to be vaccinated for cholera, etc."

From Dec. 14, 1959, through Jan. 13, 1960, the C. & G. Laboratories raised 131 pigs through this disease-free program. The local packing company processes each sow after the hysterectomy.

Both Mr. Green and Dr. Combs say that some of the equipment they use in this laboratory had to be custom made. After each litter of pigs, each piece of equipment and the room are steam-cleaned and fumigated. These sanitation features, plus the filtering of air are very important in the disease-control project. Dr. and Mrs. Combs handle the baby pigs and give them their feed. The doctor and his wife wear sanitary masks during the entire process.

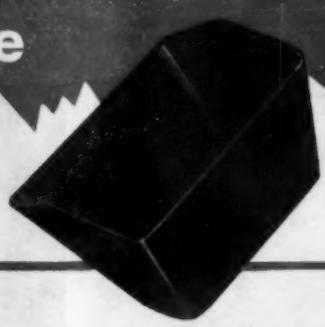
Dr. Combs points out that the baby pigs taken into the laboratory live under more sanitary conditions for the first week or more than do babies in the average hospital. This is due to the fact that air is filtered into each incubator and temperatures controlled, whereas in many hospital nurseries all babies are in one room and air is not filtered. In the disease-free pig program, filtering of air into each incubator for one week is routine procedure.

Mr. Green reports that farmers from many parts of Iowa and other states visit the C. & G. Laboratories. While they cannot enter the incubator or brooder rooms they can observe the operations through windows. "Naturally," says Mr. Green, "a discussion of feeding procedure comes up."

Usually Mr. Green has several bags of feed on display. Some of these are Pillsbury feeds and others are Green

Birdsey Flour & Feed Mills Prove

Dura-Bukets* won't rust, cake or corrode



This unretouched photo shows DURA-BUKETS after a year's use on the pellet leg at Birdsey Flour & Feed Mills, Macon, Ga. Notice the full payload capacity of the DURA-BUKETS—they're not filled with cake because DURA-BUKETS are *self*-cleaning. Notice the perfect condition of the lip . . . (fully rounded and not sharp) . . . not a sign of corrosion or abrasion. DURA-BUKETS stayed like new under conditions that corroded the metal bolts holding the cups to the belt so badly they required replacement.

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"We have used your DURA-BUKETS and have found them to be very successful on our hot pellet elevator legs. DURA-BUKETS have eliminated the caking and corrosion that has always been a problem in the past.

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Screen analysis: All through 14 mesh; 80% on 200 mesh, plus or minus 5%.

CORONET GRANULAR DIKAL

18.5% min.	20.0% min. 23.0% max.	0.12% max.

Screen analysis: All through 20 mesh; 80% to 90% on 200 mesh.

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is Best with *Eye Appeal*

For Poultry of all Ages

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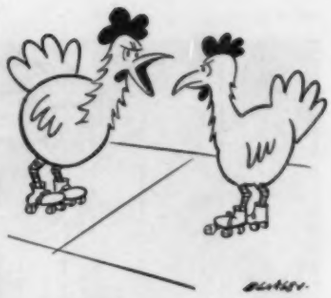
feeds made by the Green Products Co., which specializes in alfalfa products.

As with all new projects, reports Mr. Green, the cost of obtaining a disease-free pig—now $42 at this laboratory—is a question of much discussion with farmers who visit the plant. This gives Dr. Combs and Mr. Green an opportunity to tell farmers that "the greater feed efficiency obtained by disease-free pigs is worth something. So is the better mortality figure, a drop frequently from 30% to 8.3."

"Then, too," states Mr. Green, "the farmer who starts with a disease-free herd can use the breeding stock to continue the program. By controlling disease problems the farmer with disease-free breeding stock can build a herd and raise stock which will cost less eventually to raise than pigs with no free from disease period.

"Many pure bred herd owners from numerous states are deeply interested in our program," says Mr. Green. "They are buying the bulk of the pigs now from us, but so are some local farmers, too. We feel this is a program which is going to grow, for the disease-free status can be proved through post mortems."



"I think this mechanized poultry business can be carried too far!"

Started in 1947

Mr. Green started Green Products Co. in 1947. It consists today of an alfalfa dehydrating plant, a small custom mixing plant and a retail feed store. Recently, the firm opened a large custom mix plant at Beaman, seven miles from the Conrad plant.

The Conrad plant is operated by 12 men seasonally. The crews go into the fields in summer and cut standing alfalfa, chop it, bring it to the mill, dry it, grind it and then pellet it.

A California pellet mill is used here. It has a capacity of about 3½ tons per hour. All alfalfa production is pelleted and stored in sheds. Then, when there is need for bagged alfalfa meal, the stored pellets are ground. Mr. Green says that by pelleting all alfalfa the color and texture are subject to better control. Sometimes the mill uses two shifts to handle pelleting production. The firm has a fully-equipped service department. Most of the repairs on a large amount of harvesting and dehydrating machinery are made by Mr. Green's crews.

With a dehydrating plant, a new custom mill, a feed store and a disease-free pig program, Mr. Green feels his firm is in a good position to meet the needs of local agriculture.

LAYER FEED REQUIREMENTS

NEW BRUNSWICK, N.J.—A 4-lb. Leghorn hen will eat about 56 lb. of feed for maintenance in a year. For every seven eggs she lays, she will need an additional pound of feed. The laying flock requires 25-28 lb. of feed for 100 layers daily for high production, according to Rutgers University poultry specialists.

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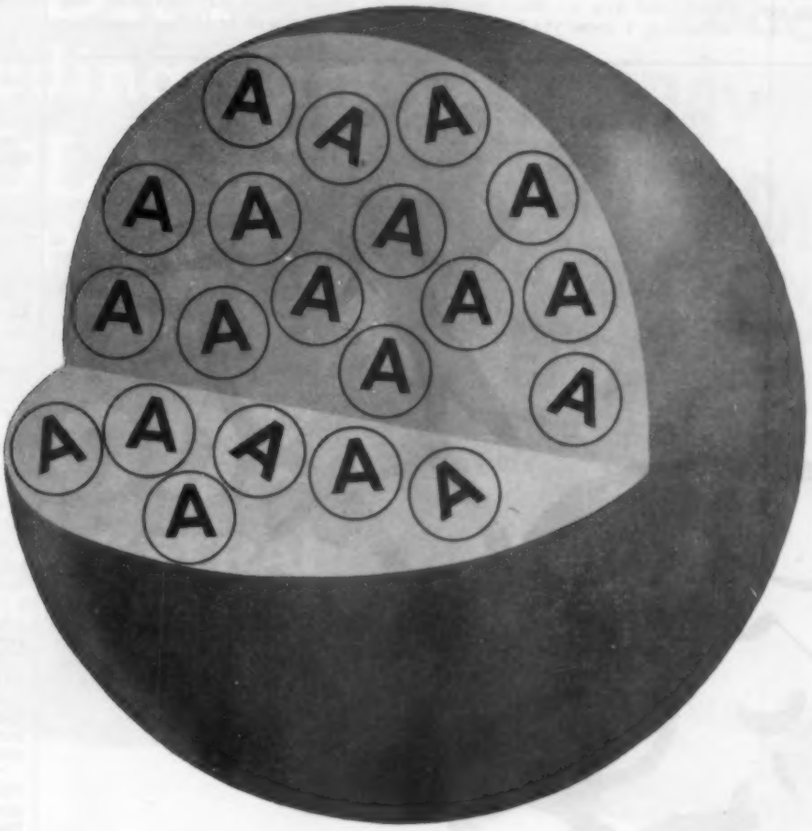

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JOE BROOKS

BY AL P. NELSON

It Pays to Have Them Talking

Herman Acker was half asleep on the davenport in his living room that April night as he sat reading the local newspaper. From the kitchen came the sound of dishes being washed as his wife Myrtle bustled about.

Suddenly, Herman blinked and glanced at the newspaper page more closely. "Myrtle!" he shouted. "Hey, that Joe Brooks is staging another stunt. Got a big ad on it."

"Oh, he just wants you to spend more money," retorted his wife. "Everytime you go there you buy something. I know you."

Wide awake now, Herman came into the kitchen holding the weekly paper. "Gosh, this sounds like it'll be fun!" he exclaimed. "Joe's offering some prizes for some funny things."

"Funny things? Like what?"

Herman chuckled. "Well, he offers a bag of pellets for the farmer who wears the most atrocious necktie on May 9th at his store. Ma, what's atrocious?"

"I don't know, Herman. Look it up."

Herman picked up an old worn dictionary he had been given 15 years before as a premium when he bought a set of books about World War II. He thumbed through it. "Atrocious means brutal, wicked and very bad. Say, Myrtle, that's what's wrong with some of my neckties, especially that last one your Ma give me."

Myrtle swung her plump form toward him, her hands still in the dishwater. "Herman Acker, how dare you talk like that about a present Ma gave you? If she knew how you felt about that present, it would break her heart. She went to so many stores to pick it out."

"Yeah, and it would break my heart to wear it any place else except to Joe Brooks' on this contest day. Yellow and green never were my colors."

"Well," said his wife, "such a contest. You're a sucker for contests."

Herman chuckled. "Well, I'd do almost anything for a free sack of pellets."

Herman Likes Pellets

"Pellets," snapped his wife. "You won a bag of pellets in one of Joe's Fall Buying Days and all you talk about since is pellets, pellets, pellets."

"Well," countered Herman, "my young hogs like 'em. And, man, do they gain on them—no spilled feed."

His wife bit her lip but said nothing.

Herman grinned. "Joe also offers a $5 sack of pellets for the farmer with the loudest pair of socks. I got some of those, too. Our kids in the city pick out the gooflest colors."

"Don't talk about our children like that, Herman. They mean well."

"And $5 for the farmer bringing in the oldest and worst looking hat. I got some of those, too."

"You certainly have," said Myrtle. "Lots of them are all plastered with manure or lime or weed spray."

"Well," defended Herman, "an old hat is like an old friend. I get used to my old hats. I'm allus lonesome in a new hat. I feel so dern foolish. But I got one with some holes in it. I'll enter that in Joe's contest."

"You mean you have to leave these things with Joe?"

Herman nodded. "Sure, you have to wear 'em into the store, and then Joe exhibits them on the wall, with your name on them."

"Oh!" almost shrieked Mrs. Acker. "How terrible. People will think we are poor if you exhibit an old hat like that."

Herman snorted. "You women! That's what I can't understand about you. You're allus so darn social and uppish. So afraid of what other people are gonna think about your clothes. Men ain't that way. They like to make fun of what they wear. They take pride in it. They like to horse around a little."

"Well, I don't!" his wife informed him coolly. "Herman Acker, you surprise me. I thought I knew you pretty

(Turn to page 38)

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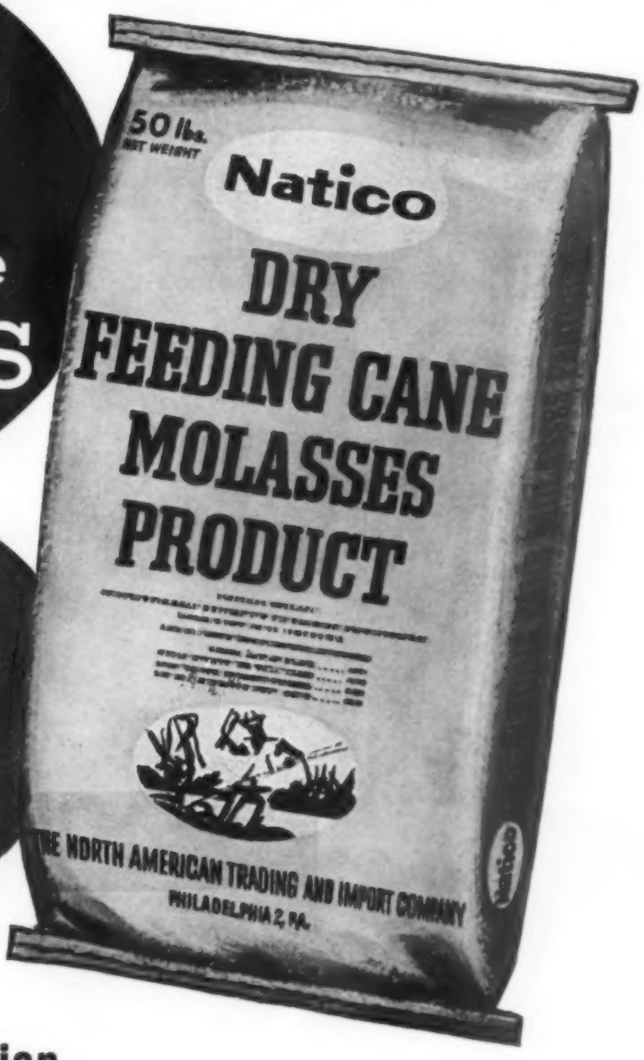

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well after being married to you for 17 years. Now, I have my doubts."

Herman chuckled. "You jest expected too much of me, honey. I don't of you. I jest knew no man could ever figger out a woman 100%, so I give up long time ago."

His wife did not reply, but scraped harder on a greasy frying pan, as though trying to punish it and Herman at the same time.

Hairy Chest Contest

"But the prize contest that I sure oughta win is this one about the hair on the chest."

Myrtle Acker gasped, and turned toward her husband. "Herman, you wouldn't!"

"Well, why not? I 'm proud of that hair on my chest. I got a good crop of it. And I don't use any 20-20-20 on it, either. That just grows because I'm a—I'm a man's man, I guess—not one of these milk-white, hairless guys."

Myrtle Acker stamped her foot. "If—if you go in there and show them your—your chest," she snapped, "I'll—I'll be so ashamed I don't know what I'll do."

"Well, ain't you proud that you married a man?" taunted Herman. "And I might win the bag of pellets."

Myrtle Acker groaned. "Enter Mother's necktie and the socks the children gave you. And your old hat. I'll stand it somehow. But promise you won't enter the hairy chest contest, pellets or no pellets."

"I won't enter it by myself, Myrtle," Herman promised, with a straight face. "Honest, I won't."

"But," he thought as he walked toward the barn for a final night checkup on the cattle, "if it's a hot May day, I'll not button the top two buttons on my shirt as usual. And if Joe rips my shirt open a couple or more buttons, well——"

BUFFALO FEEDLOTS? COULD BE

OTTAWA—Hunting for a new opportunity in feed sales? Sure you are, so stretch your imagination and take a look at the possibilities that could spring from a buffalo meat industry in Canada.

Some Canadians already are interested in establishing small buffalo herds for production of the meat as a possible tourist attraction.

Canada's Department of Agriculture says Canadian buffalo meat recently was graded for the first time by a government inspector. Five hundred and two buffalo were slaughtered at a small government-owned abattoir under supervision of federal veterinarians in Elk Island National Park east of Edmonton, Alberta. Periodic slaughters are required to control normal herd increases.

The buffalo carcasses were graded before being sold to an Alberta meat packing firm. Tentative grades have been set up on a trial basis for buffalo meat.

Cornell Sets Date For Nutrition Meeting

ITHACA, N.Y. — Cornell University's 1960 Nutrition Conference for Feed Manufacturers will be held Nov. 2-4 at the Statler Hilton Hotel in Buffalo, N.Y.

The conference is sponsored by the departments of poultry and animal husbandry, the department of biochemistry and nutrition and the graduate school of nutrition, all at Cornell University, and is conducted in cooperation with the American Feed Manufacturers Assn.

This year's chairman is Prof. Harold H. Williams, head of the department of biochemistry and nutrition at Cornell. Vice chairman is Prof. Douglas E. Hogue of the department of animal husbandry.

Copies of the conference program and cards providing for pre-registration and hotel reservations will be mailed in late August to persons who attended previous conferences. Persons not on the conference mailing list may obtain copies of the material by writing to Prof. Harold H. Williams, Savage Hall, Cornell University, Ithaca, N.Y.

1961 Dehy Convention Set for New Orleans

KANSAS CITY—Dates and the location for the 1961 annual convention of the American Dehydrators Assn. have been announced by Joe Chrisman, executive vice president.

The 1961 convention will be held at the Jung Hotel in New Orleans Feb. 8-10. The four-day carnival period of the Mardi Gras will start on Feb. 11, but anyone wishing to stay over must send advance payment for hotel accommodations.

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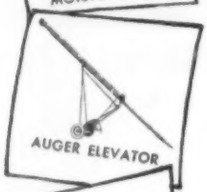

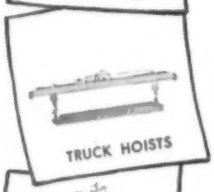

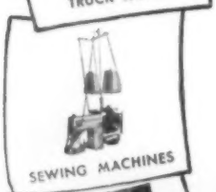

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Microbial Products in Animal Feeds

'Continued research for new microbial products, added to those now available, will doubtlessly aid in meeting the challenge for increased efficiency in the mass production of poultry and livestock.'

By Harlow H. Hall
U.S. Department of Agriculture

The development and use in feeds of an increasing number of microbiological products have opened new horizons in nutrition and have brought about spectacular advances in animal agriculture during the past 15-20 years. Microbial supplements are widely used to fortify a large proportion of the mixed feeds consumed today. Micro-quantities of vitamins, antibiotics, amino acids and unidentified growth factors bring more efficient utilization of nutrients, faster growth and, generally, more economical production of animals and animal products.

Enzyme preparations are the latest in the armament of microbial supplements, in addition to the vitamins, antibiotics and amino acids. Each of these products results from a specific strain(s) of bacteria, mold or yeast grown under suitable environment of medium, temperature and equipment.

These biological materials possess properties that cause various biochemical reactions which bring about specific physiological changes; generally, the active factor contributes little or no energy to the ration. Specific products in this category of feed supplements are given in Table 1.

The U.S. Department of Agriculture has a continuing interest in the development of feeds and feed supplements as part of its research on the utilization of cereal grains and other agricultural materials for the production of biological and industrial products. Contributions of the Northern Regional Research Laboratory in feed utilization research were recently described by McKinney (1).

During the past few years laboratories in the Agricultural Research Service, including the Northern Laboratory, have developed fermentation processes for producing vitamins, other growth factors, antibiotics and enzymes. Many such products have been developed by industrial firms.

Although silage results from microbial action, this review of the development and uses of microbial products as feed supplements does not include silage because the fermentation essentially brings about preservation rather than derivation of nutrient materials.

VITAMINS: Vitamin fortification of commercial feeds began in about 1923 following the discovery (2) that poultry could be raised in confinement during winter months by fortifying rations with cod liver oil. Today, nutritionists and the feed industry recognize the need to fortify rations with vitamins.

Although microorganisms are an especially rich source of B-complex vitamins, only vitamin B_2 (riboflavin) and vitamin B_{12} are now produced by fermentation processes in sufficiently high yields to be commercially competitive with the naturally occurring and chemically synthesized vitamins.

A bonus of substantial amounts of other B-complex vitamins naturally present in microorganisms is gained for feeds supplemented with microbial cells and fermentation residues.

Yeast contains relatively large quantities of B-complex vitamins, and substantial quantities of brewers', distillers' and Torula yeasts are used to supply vitamins, unidentified growth factors and amino acids. The vitamin composition of these yeasts is given in Table 2. Except for biotin the vitamin content varies considerably among yeast types. The greatest variation, fifteenfold, is noted for thiamine. At most, yeasts contain only trace amounts of B_{12}.

Fermentation processes to make riboflavin and vitamin B_{12} are in commercial use. Three have been developed for riboflavin production since about 1937, each using a different microorganism. The first microorganism used was Clostridium acetobutylicum, well known in the fermentation of grain or molasses to produce butyl alcohol and acetone. Dried residues from this fermentation reportedly contain 60-100 micrograms per gram of B_2 (3). The other processes employ Eremothecium ashbyii and Ashbya gossypii (3).

The A. gossypii process was developed by Northern Regional Research Laboratory scientists (4, 5) following earlier development of other methods by private firms.

Fermentation media require a source of carbon, nitrogen and also growth factors for the specific organism used. These are commonly supplied in the form of glucose, molasses, corn steep liquor, soybean meal and related substances. The dried fermentation solids which contain the vitamin may be added to feed to provide the desired level of riboflavin, or may be processed for pure riboflavin. The U.S. Tariff Commission (6) reported for the year 1958 the sale of 180,000 lb. of riboflavin valued at $2.5 million for human consumption. Production of riboflavin for animal and poultry feed supplementation is believed to exceed slightly this amount. The figures were not broken down into production by fermentation and chemical synthesis, but it is known that more than one half of the quantity was fermentation riboflavin.

In some ways, vitamin B_{12} has been the most spectacular vitamin yet found and developed for human and animal use. Discovered in 1948 almost simultaneously by American and British scientists as an agent in the treatment of pernicious anemia, B_{12} was soon identified as the Animal Protein Factor (APF), and by 1950-1951 its use became widespread in poultry and swine feeds. Vitamin B_{12} is present in varying amounts in a wide range of animal and fish products, but generally it is absent in plant materials.

Microorganisms have proved to be the primary source of supply for both human and animal uses. The first source of this vitamin for fortifying animal feeds was antibiotic fermentation culture residues. Discovery of the synthesis of vitamin B_{12} by microorganisms quickly led to searches for high yielding strains for fermentative processes.

Three fermentation processes have been developed by USDA scientists and used by industry for production of vitamin B_{12}. They were developed with the microorganisms Bacillus megaterium (7) at the Western Regional Research Laboratory, Albany, Cal.; Propionibacterium freundreichii (8) at the Eastern Regional Research Laboratory, Philadelphia, Pa.; and Streptomyces olivaceus (9, 10, 11) at the Northern Regional Research Laboratory.

Species of Propionibacterium are believed to be most widely used now because of the ease of growing the microorganism, relatively high yields of vitamin and ease of product recovery. Generally, cereal grain and oilseed products, molasses and mineral salts comprise the raw materials for the production medium. The vitamin is mostly retained in the cells of microorganisms and is recovered by either harvesting and drying the cells or drying the medium solids.

The Northern Laboratory has developed a fermentation process for producing beta-carotene (12) which, when used as a feed supplement is, of course, converted to vitamin A by animals. The process involves growing together in a grain base medium the opposite mating strains of the

EDITOR'S NOTE: This article was submitted to Feedstuffs following presentation as part of a seminar at Michigan State University. The author traces the development of vitamins, antibiotics, enzymes, fermentation residues, protein and amino acids, and unidentified growth factors. He also discusses the present status of these substances, and talks about what may develop in the future. The author is head of biological products investigations at the Northern Regional Research Laboratory, Northern Utilization Research and Development Division, Agricultural Research Service, U.S. Department of Agriculture, Peoria, Ill.

TABLE 1. Feed Supplements of Microbial Origin

Vitamins	**Fermentation residues**
Vitamin B_2	Brewers dried grains and yeast
Vitamin B_{12}	Distillers dried grains and solubles
Provitamin A	Mycelium
	Rumen microorganisms
Antibiotics	
Aureomycin*	**Proteins and amino acids**
Bacitracin	Microbial cells
Penicillin	"Free" amino acids
Streptomycin	
Terramycin*	
	Unidentified Growth Factors (UGF)
Enzymes	Fish solubles factor
Amylases	Fermentation solubles factor
Proteinases	Grass juice factor
	Unidentified mineral factor

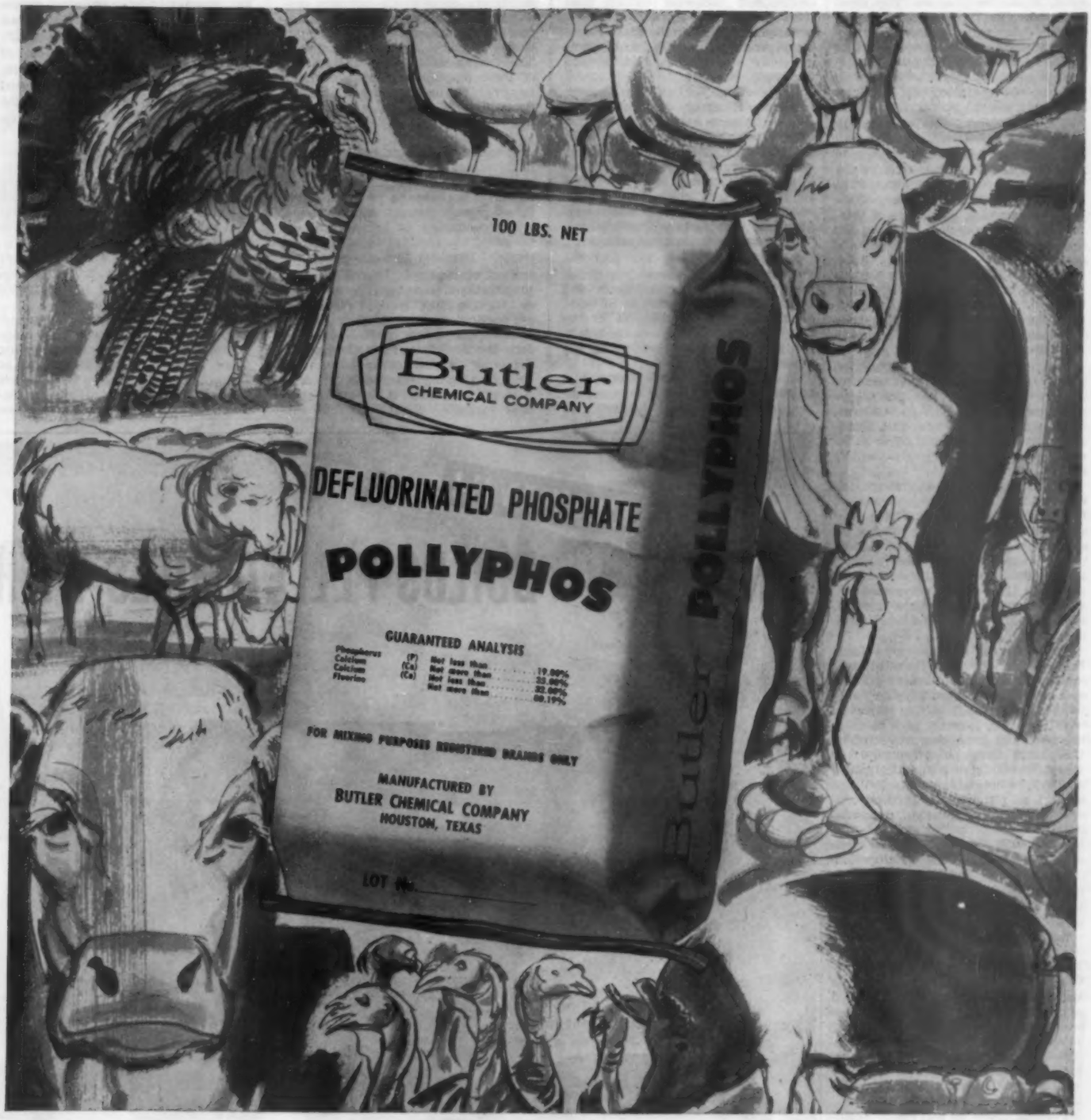
*Trade names. The mention of trade name products does not imply endorsement of them over other products of a similar nature.

TABLE 2. Vitamin Composition of Yeast

(Average in milligrams per pound)

Type	Dry matter, %	Thiamine	Riboflavin	Niacin	Pyridoxin	Choline	Pantothenic acid	Biotin	Folic acid
Brewers	93.4	41.7	15.9	203.4	19.7	1,766	49.9	0.44	4.40
Distillers	94.5	34.8	12.3	116.0	...	....	16.4	...	5.08
Torula	93.3	2.8	20.2	227.4	13.4	1,323	37.7	0.49	10.58

Ref.: Composition of Concentrate By-Product Feedingstuffs. National Academy of Sciences—National Research Council; Publication 449, June, 1956.



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mold, Blakeslea trispora. The dried solids of the fermentation are of orange color and contain up to 8% beta-carotene. Studies are continuing on the microbial production of carotenoid pigments at this laboratory with emphasis on the discovery of microorganisms for the production of xanthophylls for the coloration of poultry products.

ANTIBIOTICS: The fortification of commercial feeds with antibiotics followed closely the use of vitamin B_{12} for this purpose. The discovery of the growth-promoting properties of vitamin B_{12} for chicks was made by Ott and co-workers (13). Stokstad and associates (14) investigated antibiotic fermentation residues as a crude source of the vitamin. In 1949, these workers found that not all the activity of the crude vitamin sources could be explained on the basis of vitamin B_{12} content.

The following year Stokstad and Jukes (15) discovered that part of the growth response from this source of vitamin B_{12} was due to the antibiotic Aureomycin. From this observation attention was turned to other antibiotics for their growth-promoting properties.

Of the hundreds of antibiotics discovered, five have come into general use for feed fortification. These antibiotics and the productive microorganisms (in parentheses) are: Aureomycin (Streptomyces aureofaciens), bacitracin (Bacillus licheniformis), penicillin (Penicillium chrysogenum), streptomycin (Streptomyces griseus), and Terramycin (Streptomyces rimosus).

The value of antibiotics in feeds has been demonstrated for most farm animals. Supplementation of poultry and swine feeds, especially for young animals, is probably almost universal with the total quantity used increasing gradually from year to year. The U.S. Tariff Commission reported (6) that 1,053,000 lb. of antibiotics valued at $39.7 million were sold in 1958 for animal feed supplements, food preservation and crop spraying, compared with 795,000 lb. valued at $31.3 million in 1957. The major proportion was used in animal feed fortification.

The value of still other antibiotics for animal feed supplementation has been established, and fermentation processes have been developed to give crude products which contain one or more. Hall and co-workers (16, 17) of the Northern Laboratory developed a process with Streptomyces sp. NRRL B-1354, later identified as S. griseus var. farinosus, which when grown in a medium of distillers' solubles, soybean oilmeal, glucose, cobalt chloride and other mineral salts, forms vitamin B_{12} together with the antibiotics streptothricin and streptolins A and B.

Feeding trials by Dr. Philip Schaible of Michigan State University established the growth promoting value of this product in chick feeding trials.

Fritz and co-workers (18) reported that the growth stimulation in chicks and turkey poults resulted from an unidentified factor(s) rather than from the vitamin B_{12} and antibiotic activity. Products from this fermentation are reported (18) to be commercially available as Neovite and Condensed Neoferm.

Lewis et al. (19) of the Western Regional Research Laboratory assigned the name aterrimin to a group of growth-promoting antibiotics elaborated by a strain of Bacillus subtilis var. aterrimus (NRRL B-1471). A fermentation process was developed for producing a chick feed supplement by culturing the microorganism in a carbohydrate base medium. The process is in commercial use.

ENZYMES: During the past 3-4 years an intense interest has developed in enzymes in animal feeds, and during 1958-1959 a number of commercial enzyme preparations for the supplementation of rations for cattle, poultry and swine appeared on the market.

These preparations are of microbial origin and, although the microorganisms are not identified, bacteria and molds are believed the primary producers of the amylolytic (starch-splitting) and proteolytic (protein-splitting) enzymes contained in them. There is no indication of the amount of these enzyme preparations manufactured or used; however, several firms produce them as ration supplements.

Underkofler et al. (20) published an excellent report on the production of microbial enzymes and their applications. The effectiveness of enzymes in feeds appears to be well established, mainly through animal feeding trials conducted at agricultural experiment stations, universities and industrial research farms.

The concept of feeding enzyme preparations to animals is not new. Among the early general discussions of feeding enzyme preparations to animals was a talk by B. L. Oser before the American Feed Control Officials in 1947 (21). Consideration, he said, had been given much earlier to feeding enzymes; it was probably first suggested about 1923. The subject appears to have remained essentially dormant until 1955-1956, when Bondi and Birk (22) and Catron (23) reported findings on the effect of proteolytic enzymes on protein feeds. Jensen and co-workers (24) reported improvements in the nutritional value of barley for chicks by enzyme supplementation.

Bacterial or fungal enzymes are about equally effective in feeds. Jensen (25) reported that water-treated barley vs. nontreated barley resulted in a greater growth response, but that the process of water-treating this grain is uneconomical commercially. For some reason the water treatment sufficed for western grown barley, but the feed value of barley grown elsewhere was not improved.

More recently studies of enzyme-supplemented feeds have been made at many locations. Prominent among these is the work of Burroughs at Iowa State University (26) where beef cattle fattening rations supplemented with enzymes have been

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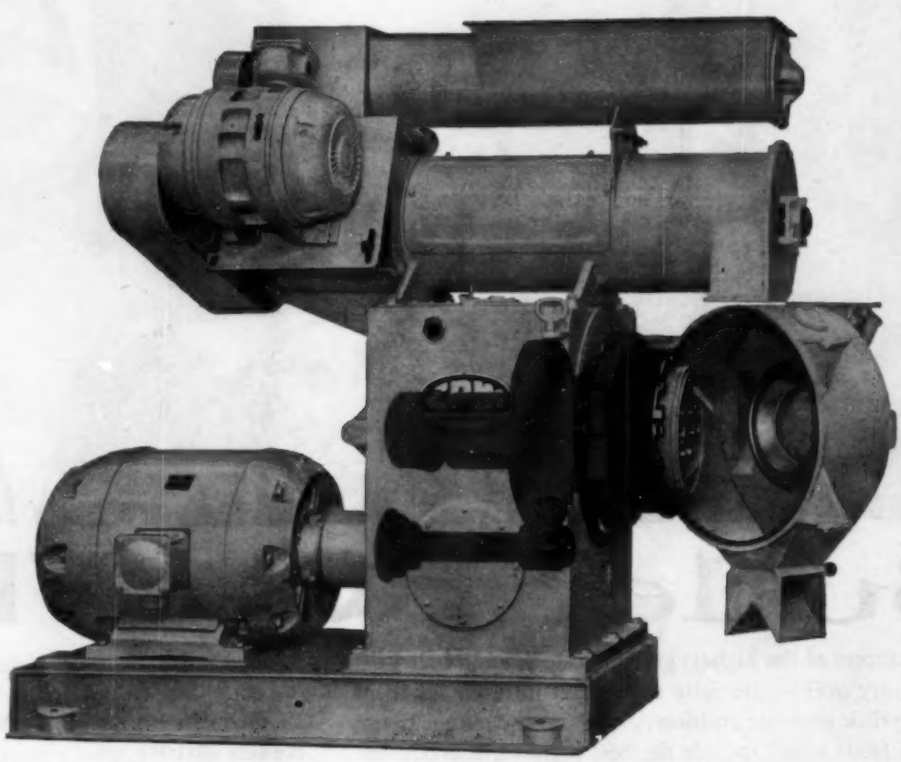

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FERMENTATION RESIDUES: Fermentation residues usually contain a mixture of microbial cells, their secreted products and unfermented portions of raw materials which are used as medium constituents. The residues are usually marketed in dry or sirup form for their feed value.

In 1947 Boruff (27) reviewed the recovery and value of residues from grain, molasses and fruit fermentations, emphasizing problems attendant to disposal, composition of residues and utilization as feeds.

Because of feed protein shortages and disposal problems during World War II, studies were undertaken and since continued, some under the auspices of industry associations, including the Brewers Yeast Council, Inc., and Distillers Feed Research Council, Inc., of the properties and uses of these residues.

The most widely used fermentation residues in animal feeds are dried grains and solubles from the distilling industry, and dried grains from the brewing industry. Data for 1959 show the production of about 340,000 tons of distillers' feeds, and approximately 235,000 tons of brewers' dried grains.

When available, fermentation residues from the production of acetone-butanol and from alcohol-molasses fermentation are used in mixed feeds. These products are sources of proteins, vitamins, minerals and unidentified growth factors. Analyses of these products have been published (28) by the National Academy of Sciences - National Research Council.

Since the advent of the antibiotic industry, dried mycelium has become available in large quantity, and some is used in feeds (3). Frequently, a quantity of antibiotic or a vitamin, such as vitamin B_{12}, remains which increases the value of the dried residue as a supplement. The gross composition of the mycelium of Penicillium chrysogenum from penicillin production is: protein, 32%; moisture, 8%; fat, 7%; ash, 20%; crude fiber, 7%; and nitrogen-free extract, 26%.

Dried-rumen microorganisms obtained from fistulated or slaughtered animals have also been studied nutritionally. Although not strictly a fermentation residue, feed value appears to come mainly from living microorganisms.

Benefits derived from feeding rumen organisms to cattle under stress have been reviewed by Czarnetzky (29). Kamstra et al. (30) reported that dried rumen products fed to sheep had no stimulatory effect on rate of gain, feed efficiency, feed consumption or digestibility of major nutrients.

Commercial preparations of dried rumen bacteria are marketed for feeding. Muhrer (31) of the University of Missouri developed a patented process for drying and preserving rumen bacteria and product in a viable form.

PROTEINS AND AMINO ACIDS: Grains are the basic ingredient of most feeds. They contribute mainly carbohydrates and proteins; however, their proteins are often deficient in certain amino acids for some animals, notably in lysine, methionine and tryptophan. Supplemental amino acids are required, therefore, to bring this part of the ration into balance.

Oilseed meals, fish meal, fermentation residues and animal products are generally employed to make up the largest part of amino acid deficits in feeds; microbial cells supply good proteins, and yeast in particular is widely used as a supplement.

Microorganisms, like plants and animals, synthesize proteins, and in so doing may synthesize some or even all of the common amino acids from carbohydrate and simple sources of nitrogen.

Anderson and Jackson (32) reviewed the essential amino acid composition of microbial proteins. The average nitrogen content of the bacteria, yeasts and molds in their compilations is 11.1, 8.2 and 5.7% of the dry weight, respectively. Bacteria and yeasts showed little variation in the quality of the 10 essential amino acids among the various genera reported.

The essential amino acid content of the filamentous fungi is more variable and generally lower than that of either bacteria or yeasts. The amino acid contribution of microbial cells to nutritional requirements would, therefore, depend upon the type and proportion of microorganisms in the product.

The Northern Laboratory investigated the production of amino acid supplements by microorganisms grown on cereal grains. In a search for microorganisms with an extraordinary amount of lysine, methionine and tryptophan in their proteins, Anderson et al. (33) analyzed 86 cultures of bacteria, representing 81 species classified in 30 genera. A few species were found whose lysine content exceeded 10% of the protein; however, none was found whose methionine or tryptophan approached this level. Species of yeasts and molds likewise were analyzed for these amino acids, but the data have not been published.

Microorganisms have been extensively studied as sources of specific amino acids which may be laid down in unusual amounts in their proteins, or liberated as "free" amino acid into the growth medium. From these studies fermentation processes have been described for producing L-lysine with a two-culture system using

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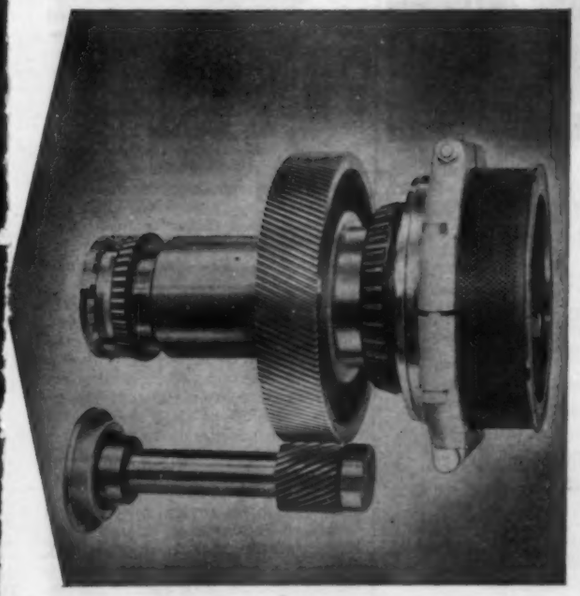

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strains of Escherichia coli and Aerobacter aerogenes (34), with a mutant strain of Escherichia coli (35) and with a Micrococcus species (36). Dulaney et al. (37) of the Canadian Prairie Regional Laboratory have reported that strains of the smut fungus Ustilago maydis synthesize promising amounts of L-lysine which is liberated by the cells as "free" amino acid.

Yeast is the only microbial-cell feed supplement made in the U.S. as the primary product of the process. Two plants operating in Wisconsin produce the greater part of feed yeast by growing strains of Torula (Canadida utilis) yeast in a continuous process on waste sulfite liquor from the manufacture of paper pulp.

During the process, virtually all of the reducing sugars are removed, and the B.O.D. is reduced substantially, which alleviates the problem of disposing of the waste liquor. Approximately 50 lb. of yeast cells are obtainable per 100 lb. of fermentable carbohydrate. Yeast is recovered by centrifugation and drying.

Brewers' yeast, resulting from grain fermentations, is recovered and diverted to feed and food uses. Through research sponsored by the Brewers Yeast Council, Inc., general and specialized uses have been discovered for this yeast in feed for poultry, livestock, fur-bearing animals and fish. Its composition and role as a source of unidentified growth factors are discussed elsewhere in this report.

TABLE 3. Differentiation of Unidentified Chick Growth Factors*

1. Fish solubles factor	
	Fish solubles
	Fish meal
	Meat scraps
	Dried whey and other milk by-products
	Penicillin mycelium meal
2. Fermentation solubles factor	
	Grain distillers dried solubles
	Molasses distillers dried solubles
	Liver meal
	Brewers dried yeast
	Fish solubles
	Soybean oil meal
3. Grass juice factor	
	Fresh forage juice
	Liver meal
	Brewers dried yeast
	Dried whey
	Dried skimmed milk
	Dried buttermilk
	Soybean oil meal
	Fermentation dried solubles
4. Unidentified mineral factor**	
	Grain distillers dried solubles
	Fish solubles
	Feather meal
	Soybean oil meal
	Brewers dried yeast
	Dried whey (some samples)
5. Protein factor	
	Soybean oil meal
	Peanut oil meal
	Casein
	Gelatin (some samples)

*Reproduced with permission of Dr. M. L. Scott and Distillers Feed Research Council, Inc., from Proceedings Distillers Feed Conference (42).

**Probably zinc, as suggested in a personal communication from Dr. Scott.

UNIDENTIFIED GROWTH FACTORS: Prior to the identification of the presently known nutritional factors each may have been considered an "unidentified growth factor" (UGF). Nearly every one of the vitamins has been in this category going back as long ago as 1906 when the "accessory food factor" concept was originated by Sir Frederick Hopkins of England. In 1912 the first of these factors was named "vitamine."

Vitamin B_{12}, which was recognized by animal nutritionists as the Animal Protein Factor (APF), is the latest UGF to be identified. It is produced by microbial fermentation for large-scale use in animal feeds.

The presence of UGF for poultry and swine has been established in numerous plant, animal and marine products used in animal feeds. These have been extensively investigated and the subject reviewed by several investigators including Menge (38), Reid et al. (39) and Couch et al. (40). Recently, Scott (41) of Cornell University tabulated five distinct unidentified chick growth factors and their sources in natural materials. His data are reproduced in Table 3.

Microbial products in one form or another are a source of each factor, except the protein factor. In a later review, Scott (42) cited evidence for still another factor, namely a UGF which is concerned in the proper utilization of arginine even during an amino acid imbalance. The multiplicity of sources of the UGF shown to promote animal growth makes it relatively easy for a feed manufacturer to include them in feeds in amounts

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An eminent nutritionist and formulator of ruminant feeds recently remarked that the addition of dehydrated alfalfa would provide "roughage nutrition" that could not be obtained in any other way. He said, "It is true that adding dehy increases the cost of our products, but we have found that performance and results are remembered long after price is forgotten."

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ample to supply the requirements for best performance.

Scientists are progressing toward the isolation, purification and identification of these factors. The problem is especially difficult and progress is often slow because of (1) lack of knowledge of chemical properties, (2) the presence in source material of extremely small quantities which makes isolation difficult and (3) most critical, lack of methods for rapid and reproducible assay.

Nevertheless, progress is being made in solving the identity of these factors. The history of the development of nutritional factors indicates that when the identification is finally made, still new sources of the factors will be discovered and methods developed for their large-scale production by isolation from natural sources, chemical synthesis or microbiological processes.

NEW PRODUCT POSSIBILITIES: Much of the expansion in animal production has come about through better feeds made possible by new products. The commercial broiler industry, for example, has grown from .5 billion in 1949 to about 2 billion birds in 1959, due in part to the use of new biological products, particularly antibiotics and vitamins (B_{12} and B_{12a}). Still other new products are sought and, indeed, are needed to aid in meeting the demands for increased efficiency in the mass production of poultry and livestock. What are some of the possibilities for new products from microorganisms?

One that seems most certain is a feed-grade lysine. An inexpensive source of lysine is greatly needed. A market for over 4 million lb. per year is indicated (36), should it be available at a favorable price. Improvements in existing fermentation processes or development of new ones will make this possible. Searches are continuing in several laboratories for microbial sources of still other amino acids. No doubt the work will be fruitful.

Scientists are busily looking for microorganisms to produce carotenoid pigments, among them xanthophylls which have pigmenting effects in poultry products, similar to lutein and zeaxanthin found in alfalfa and yellow corn.

Members of the yeast genus Rhodotorula hold some possibilities, either through discovery of new productive species or by mutation techniques. Also, the possibility exists that transformation of specific carotenoid compounds can be brought about with microorganisms such as are done in the hydroxylation of steroids.

Identification of more of the UGF may lead to the discovery of new vitamins. Once the vitamin has been characterized and its properties elucidated, microorganisms could be expected to produce it in quantity. Further exploration of microorganisms may reveal still other UGF, tranquilizing agents or estrogens.

Algae have long been considered a source of proteins for food and feed. Work on this group of microorganisms has been carried out by several laboratories in the U.S. It is generally concluded that, while the mass culture of algae is possible, technical and economical problems do not favor production in the next few years. Perhaps in the distant future algae will become a feed product, should technological advances be made and need for the product developed. Combs (43) fed vacuum-dried Chlorella to chicks and concluded that it may serve as a vitamin and protein supplement.

CONCLUSION: Microorganisms, including bacteria, molds and yeasts, are a source of vitamins, antibiotics, proteins and amino acids, enzymes and related factors used in animal rations to improve feed efficiency and increase the rate of growth. Cereal grains, oilseed meals and other agricultural products are the principal raw materials from which these feed supplements are derived by fermentation.

Continued research for new microbial products added to those now available, will doubtlessly aid in meeting the challenge for increased efficiency in the mass production of poultry and livestock.

♥ ♥

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(Turn to PRODUCTS, page 68)

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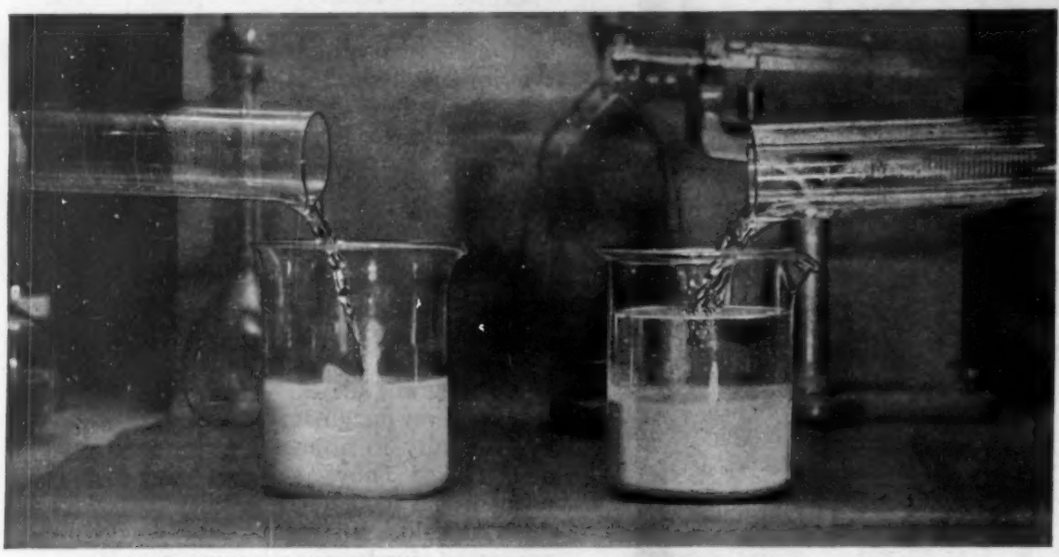

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◀ Paul V. Imes, Director of Carey Salt Research

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Unusual Fumigation Of Grain Reported

ST. LOUIS — A large flat-storage grain bin recently was fumigated by direct application through meters from the tanks on a large, over-the-road tank trailer in what is believed to be the first fumigation in history performed in this manner with the type of fumigant used.

The fumigant used was 30% ethylene dibromide, 70% methyl bromide (Dawson °37). In the past, fumigants of this type have been available only in relatively small cylinders, according to Ferguson Fumigants, Inc.

This giant bin presented a number of unique fumigation problems, Ferguson officials said. The roof was held up by 15 lb. of air pressure per square inch. The pressure was constantly maintained by electrically operated fans. The bin could be entered only through an air lock. The bin was equipped with a recirculation system, designed to operate while the air pressure was maintained inside the building. A degree of over-dosing was required to compensate for the continuous recirculation. The dosage was calculated at 11,000 lb. for the fumigation.

The dosage was applied from a single large truck tank containing 14,300 lb. of the fumigant. The fumigant came out through two meters and 10 lines of tubing. The tubing was so placed in the bin to distribute the gas evenly over the surface. The fumigant was pulled down through the grain by the aeration fans attached to the recirculation system. The fumigant was moved through the grain mass several times.

Air movement through the grain was pre-determined by the use of a manometer, Ferguson officials said. Sample probes were inserted in the areas showing poorest circulation, air samples were obtained and gas content determined by use of a "fumiscope." While the gas was moving into the bin, a constant pressure was maintained on the truck tank by an air compressor that supplied air into the tank through a chemical air dryer.

The large tank trailer used is a dual-purpose outfit. The tank was originally built to transport the fumigant in bulk to storage tanks, then transferred to small automobile trailers for fumigation of smaller bins. But automobile trailer units are too small for bins of the size described. Though still used for transportation purposes, the large tank trailer is used now for the large scale direct metered bin fumigation, too.

LARGE TANK TRAILER — This is the large over-the-road tank trailer used in the fumigation described in the accompanying story. It is believed to be the first fumigation in history performed in this manner with the type of fumigant used.

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Says Farmer Needs Help in Marketing

URBANA, ILL.—Sweeping changes in the livestock market organization have left the average farmer in a difficult position to evaluate alternative market outlets, a University of Illinois livestock marketing economist declared at the college's 1960 Farm and Home Festival.

Dr. E. E. Broadbent stated that a farmer today "must tie in with some organization to help him realize the full value of the stock he has to sell. This may be either a private or a cooperative agency."

The rapid changes in marketing livestock are due to quick communication, modern roads, quick cure of meats, advances in refrigeration and processing equipment, change in types of producing units and size of retail outlets and obsolescence in packing plants and facilities, he said. These forces have played havoc with the older established livestock market organizations.

"Whether a farmer sells at the country point or at the terminal market is not too important if he is as well informed as the buyer or has someone represent him who is as well informed," Dr. Broadbent said. "But, operating on his own, the livestock producer may not be in an equal bargaining position."

REVAMPING BULK TANKS

ELMA, WASH.—Elma Feed Co. is currently installing a concrete pier and revamping its bulk feed storage tanks at the rear of the building. Estimated cost is $5,000 with the installation of machinery being done by Adleman Machinery Co., Seattle.

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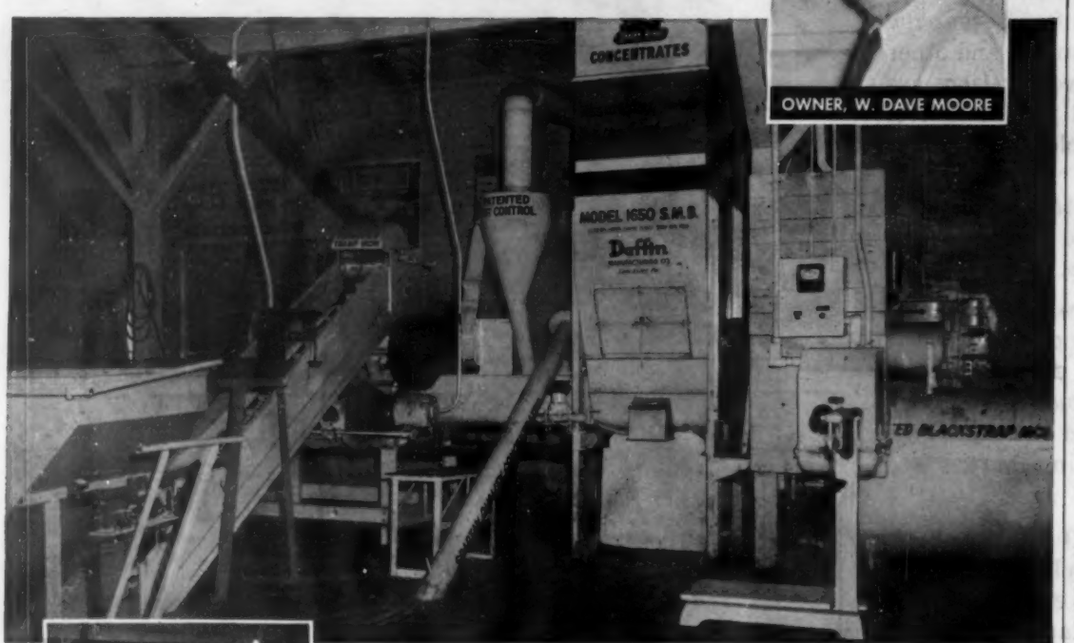

This photo illustrates how flexibly Daffin components can be arranged for operating convenience.

THE SOUTHERN GRAIN & OIL CO., INC., TARBORO, N.C. has increased overall business 35% the first year since installing a Daffin Packaged Feed Mill.

They're now mixing more feed than they ever expected, and giving better service at the same time.

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This mill is compact, complete in one floor. It is custom arranged to fit the building and is operated by one man. Operation is so dust free the owner says, "We've scarcely had to clean up at all". Some of the other Daffin features include fast roughage grinding, precision mixing, superior molasses blending, plus top economy and low cost maintenance.

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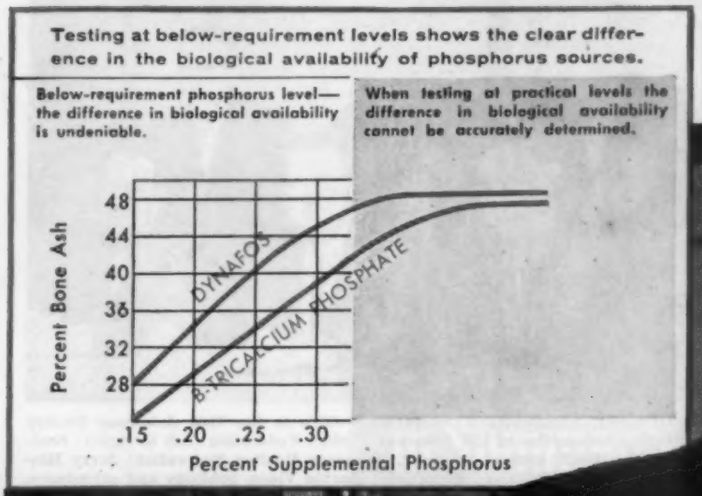
DECATUR, ARKANSAS



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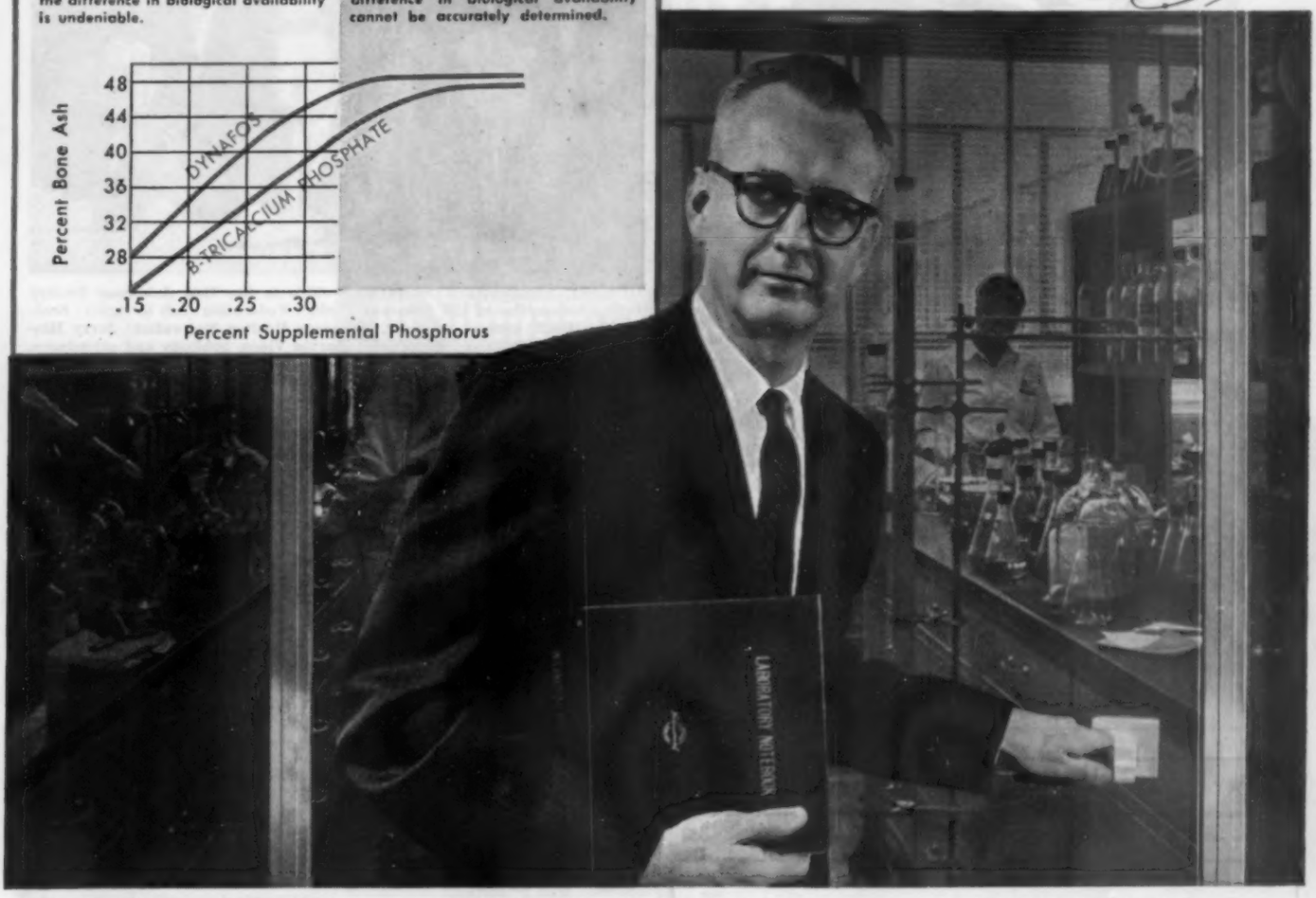

Dr. Herbert Peeler, Director of Animal Nutrition Research at IMC, supervises the "IMC test" of feed phosphate value — the testing technique used to maintain the high biological value of DYNAFOS.

YOU NEED HAVE NO DOUBT ABOUT A PHOSPHORUS SOURCE THAT "MEASURES UP" IN THIS TEST

Chances are you look with a skeptical eye at tests used to back up phosphate biological availability claims.

And well you should! Most of these tests are conducted at a "practical" *phosphorus level*—that is, test phosphorus sources are compared in a typical commercial formula feed. These tests do NOT show the *true difference* in phosphate sources, because the low value of inferior sources is "covered up" by phosphorus compounds present in the test ration used.

There's one testing technique that exposes feed phosphorus sources for what they *really* are. That is the *IMC Biological Assay of Phosphorus Availability*. This test compares phosphate sources at *below-requirement levels* . . . where each source must stand on its own two feet . . . where "life and death" differences can be accurately measured.

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POULTRY FESTIVAL COMMITTEE—This is the 1960 Arkansas Poultry Festival Committee of the Arkansas Poultry Federation (left to right): Seated, John Haid, general manager, Arkansas Poultry Federation; Jerry Hinshaw, general chairman, Springdale; Marvin Vines, publicity and attendance, Little Rock; standing, George Riley, egg products, Searcy; K. K. Hale, "Chick-n-Que, Decatur, and Roy Grimsley, "Chicken Cookin' Queen Contest," Springdale. Not in the picture is Charles Hailey, poultry princess contest.

Plans Completed for Poultry Federation's Festivals in Arkansas

LITTLE ROCK, ARK—Plans have been completed for the "most comprehensive series of poultry activities ever held in the state," according to Jess Merkle, president of the Arkansas Poultry Federation. There will be four regional poultry festivals in the major poultry areas of Arkansas, climaxed by the federation's poultry princess coronation to be held June 24-25 at Robinson Auditorium.

Mr. Merkle said that Jerry Hinshaw, general chairman, and his committee had arranged for local industry leaders to hold district Chick-n-Ques at Decatur, May 28; Russellville, June 3-4; Batesville, June 11 and Hope, June 18. At each of the district festivals, a "Chicken Cookin' Contest" will be held in cooperation with home demonstration agents and home economics teachers. The four finalists in each district will receive a trophy and will compete in the state finals in Little Rock to determine a "Chicken Cookin' Queen." More than $1,000 worth of merchandise, including stoves, refrigerators and dishwashers, will be awarded the three top winners of the contest.

A beauty pageant will also be held at each district festival. The four finalists from each district will be entered in the state contest to choose the Arkansas poultry princess.

The Arkansas federation has recently purchased the state franchise for the Miss Universe Pageant so that the poultry princess will be Arkansas' entrant in the Miss Universe Contest to be held at Miami Beach July 2-9. She will receive $1,000 in cash and an all-expense trip to Miami Beach.

John Haid, general manager of the federation, said, "We in Arkansas are proud of our poultry industry. It creates over $105 million in gross sales annually. Our volume, quality and efficiency have continued to increase even under severe economic pressure. We are holding this big event in our capital city this year to call attention of both the state and the nation to the fact, 'Poultry Is Big Business in Arkansas.'"

Entertainment featuring nationally recognized talent will be announced later. Tickets to the coronation banquet will be $50.

Mr. Haid said many industry leaders across the nation will be invited as guests of the federation.

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Convention Calendar

April 24-28—Business Management Program, sponsored by Southeastern Poultry & Egg Assn., University of Georgia, Athens; sec., Harold E. Ford, 235 East Ponce de Leon Ave., Decatur.

April 29—Washington Beef Cattle Day; Washington State University, Pullman; Dr. Irwin Dyer, Animal Science Dept.

April 29—Alfalfa Processors Assn.; Elks Lodge, Findlay, Ohio; Ray Verhoff, Ottawa, Ohio.

May 1-4—National Fisheries Institute; Hotel Fontainebleau, Miami Beach, Fla., asst. gen. mgr., Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

May 1-5—American Association of Cereal Chemists; Morrison Hotel, Chicago; Association Office, 1955 University Ave., St. Paul 4, Minn.

May 9-11 — American Feed Manufacturers Assn.; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 9-11 — Association of American Feed Control Officials; Sheraton-Blackstone Hotel, Chicago; sec., Bruce Poundstone, Feed and Fertilizer Dept., Agricultural Experiment Station Bldg., University of Kentucky, Lexington.

May 11 — South Carolina Poultry Festival; Batesburg-Leesville, S.C.; sec., W. E. Sanders, Batesburg.

May 15-16—Missouri Grain & Feed Assn.; Hotel Governor, Jefferson City; sec., D. A. Meinershagen, Higginsville.

May 15-17 — National Cottonseed Products Assn.; Roosevelt Hotel, New Orleans, La.; sec., John F. Moloney, Box 5736, Memphis 4, Tenn.

May 16—Des Moines Feed & Grain Club Field Day; Hyperion Field Club and Veterans Memorial Auditorium; Les Bright, 1850 E. Euclid, Des Moines 13.

May 23-27 — Southeastern Egg Quality and Grading School; University of Georgia, Athens; sponsored by Southeastern Poultry & Egg Assn., sec., Harold E. Ford, 235 East Ponce de Leon Ave., Decatur.

May 24-25 — Egg Marketing and Merchandisers Institute; Cornell University, Ithaca, N.Y.

June 5-9—Association of Food and Drug Officials; Baker Hotel, Dallas, Texas; sec., J. F. Lakey, Director, Division of Food and Drugs, Texas State Department of Health.

June 6-7 — Central Retail Feed Assn.; Schroeder Hotel, Milwaukee, Wis.; sec., Eldon Roesler, 1712 W. St. Paul Ave., Milwaukee.

June 9 — Ohio Beef Cattle Day; Ohio Agricultural Experiment Station, Northwestern Substation, Hoytville.

June 12-14—Eastern Federation of Feed Merchants, Inc., Whiteface Inn, Lake Placid, N.Y.; exec. director, Austin W. Carpenter, Sherburne, N.Y.

June 13-15 — American Association of Feed Microscopists; Hilton Hotel, San Antonio, Texas; sec., G. M. Barnhart, Missouri Department of Agriculture, Jefferson City, Mo.

June 14-15 — Alabama Poultry Industry Assn.; Municipal Auditorium (Exhibits) and Thomas Jefferson

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the columns in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

May 3 — Beef Cattle Field Day; Fort Reno Experiment Station, El Reno, Okla.

June 2-3 — Poultry Servicemens Clinic; Purdue University, Lafayette, Ind.; chm., Joe W. Sicer, Extension Poultryman, Poultry Science Department.

June 8-9—Pacific Northwest Grain Dealers Assn.; Davenport Hotel, Spokane, Wash.; sec., Merrill D. Sather, Peyton Bldg., Spokane.

Aug. 22-23—Kentucky Feed Conference; Campbell House, Lexington; sponsored by the Kentucky Grain & Feed Assn. and University of Kentucky; sec., Jack Weber, P.O. Box 425, Lexington.

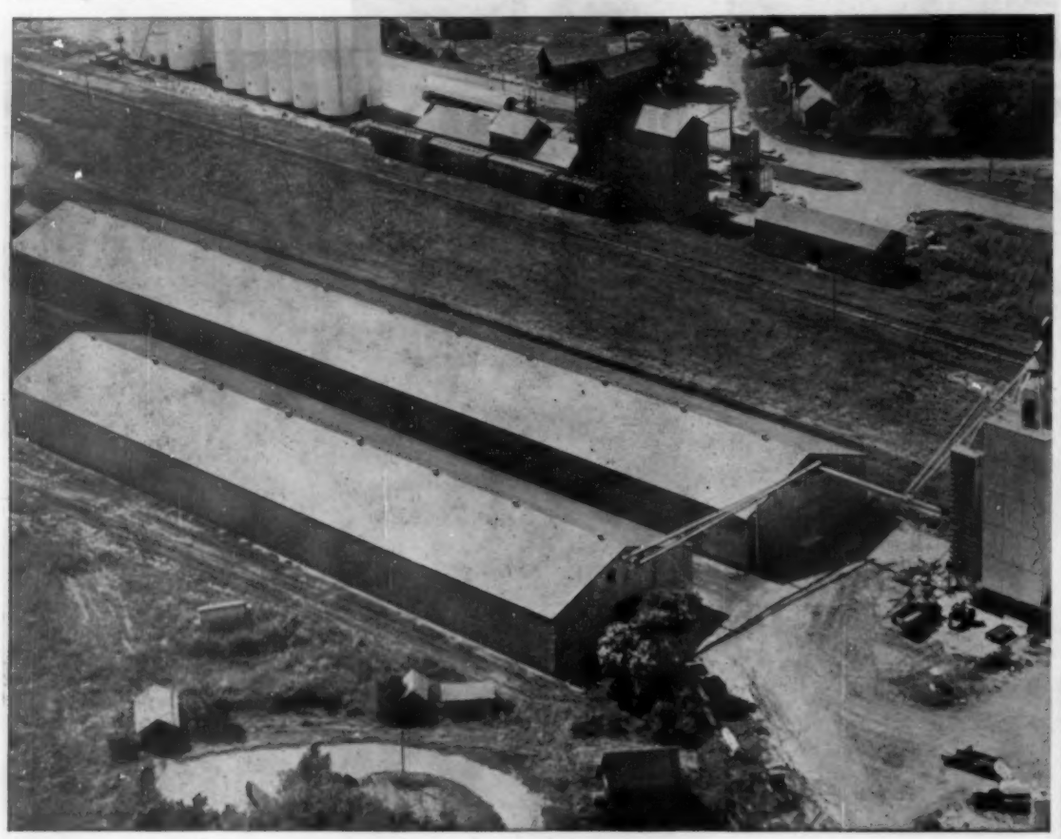
Sept. 21-22 — Marketing Seminar for Feed Manufacturers; Morrison Hotel, Chicago; Sales Executives Council, American Feed Manufacturers Assn., W. E. Glennon, president, 53 W. Jackson Blvd., Chicago.

1961

Jan. 31-Feb. 1 — Hoosier Turkey Trot; Purdue Memorial Union, Purdue University, Lafayette, Ind.; John N. Howell, Turkey Department, Indiana State Poultry Assn., Poultry Bldg., Purdue University.

Feb. 2-3—Oregon Animal Nutrition Conference; Withycomb Hall, Oregon State College, Corvallis.

Feb. 7-10—American Dehydrators Assn.; Jung Hotel, New Orleans, La.; executive vice president, Joseph Chrisman, 430 Board of Trade Bldg., Kansas City 5, Mo.



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Hotel, Birmingham, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

June 14-17—NEPPCO Egg Quality School; Rutgers University, New Brunswick, N.J.; Dr. A. Van Wagenen, NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

June 16-18—Canadian Feed Manufacturers Assn.; Jasper Park, Alberta, Canada; chm., R. Hill, P. O. Box 39, Edmonton, Alberta.

June 17-18 — Delmarva Chicken Festival; Selbyville, Delaware; Delmarva Poultry Industry, Inc., R.F.D. No. 2, Box 47, Georgetown.

June 19-21—Indiana Grain & Feed Dealers Assn.; Mid-Summer Convention; French Lick-Sheraton Hotel, French Lick; sec., Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4.

June 19-22—The American Dairy Science Assn.; Utah State University, Logan; sec., H. F. Judkins, 32 Ridgeway Circle, White Plains, N.Y.

June 20—All-Industry Poultry Day; Law Building Auditorium, University of Illinois, Urbana; S. F. Ridlen, Poultry Extension Specialist.

June 21-22 — Association of Southern Feed & Fertilizer Control Officials; Riverside Hotel, Gatlinburg, Tenn.; sec., Maurice B. Rowe, Department of Agriculture, 1119 State Office Bldg., Richmond 19, Va.

June 23-24—Northeastern Poultry Producers Council Business Management Conference for Egg and Poultry Marketing Cooperatives; Hotel Viking, Newport, Rhode Island; Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

June 24-26—Arkansas Poultry Festival; Little Rock; Arkansas Poultry Federation, P.O. Box 1446, Little Rock; chm., Jerry Hinshaw, Springdale.

July 19-21—American Poultry Congress and Exposition; Ellis Auditorium, Memphis, Tenn.; sponsored by American Poultry & Hatchery Federation; sec., Don M. Turnbull, 521 E. 63rd St., Kansas City 10, Mo.

July 23-26 — Georgia Feed Assn.; General Oglethorpe Hotel, Wilmington Island, Savannah; sec., Will L. Kinard, Suite 210, 3240 Peachtree Road Bldg., Atlanta 5, Ga.

July 29 — Ohio Sheep Day; Ohio Agricultural Experiment Station, Wooster.

Aug. 1-6—Feed Microscopy Short Course; Memorial Student Center, Texas A&M College, College Station;

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Dr. Wallis Answers

YOUR QUESTIONS ON VITAMIN D NUTRITION

Q: How can I be sure each pound of my feed has the same amount of vitamin D as the next pound will have?

A: Uniform distribution depends mainly upon the physical properties of the vitamin D concentrate, proper mixing methods and efficient equipment. By careful management, mixing, adequate for all practical purposes, can be readily achieved. The extremely small particle size and free-flowing characteristics of Fleischmann's FIDY Irradiated Dry Yeast help tremendously in getting good distribution.

Q: At what age of animal is vitamin D most important?

A: Lack of adequate vitamin D can be disastrous at most any age. Formerly, vitamin D deficiency was thought to occur only in young growing animals. Research has now shown that mature dairy cows need vitamin D. Difficulties from inadequate vitamin D have also been observed in older beef cattle, sheep and swine.

Q: Is there a relationship between the daily feeding of a higher level of vitamin D, 9,000 units per pound of feed or more, and the possible control of milk fever without having to feed the massive doses recommended for the short period before freshening?

A: Recent careful research provides reasons why benefits from year around feeding of higher levels of vitamin D might be expected. Older cows have previously unrecognized difficulties in absorbing and utilizing calcium. Extra vitamin D helps. The results of clinical and practical studies on the control of milk fever by fortifying regular dairy rations at higher levels are very encouraging.

Q: Does artificial drying lessen the vitamin D content of hay?

A: Figured on a dry matter basis, the vitamin D content of artificially dried hay is probably about the same as was in the green forage before drying. During field curing vitamin D tends to increase but the amount is not as great as commonly supposed. Reports on 13 samples showed an average increase of only 115 units per pound during field curing. Such an increase in vitamin D in a whole ton of hay would be worth only about ½ cent.

Q: What is the difference between brewers dried yeast and irradiated dry yeast?

A: Brewers dried yeast is a by-product from the brewing of beer and ale which is used in feeds mainly as a source of the B-complex vitamins and protein. FIDY Irradiated Dry Yeast is a primary grown yeast which has been subjected to ultraviolet irradiation under carefully controlled conditions to produce vitamin D_2. It is used in four-footed animal feeds solely as a source of vitamin D.

A. C. Wallis

For more complete answers to any of these questions write to Dr. G. C. Wallis, Director of Nutrition, Agricultural Department, Standard Brands Incorporated, 625 Madison Avenue, New York 22, N. Y.

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- **The improvement in absorption and utilization of calcium and phosphorous.**
- **The variability of vitamin D from natural resources.**
- **The availability of calcium reserves in older cattle.**

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NEW MISSISSIPPI GROUP PRESIDENT—A. J. Vaughan (center), Corinth, Miss., newly-elected president of the Mississippi Valley Oilseed Processors Assn. receives the gavel from retiring president Zach McClendon, Monticello, Ark., at the group's first annual convention in Biloxi. Watching is C. E. Garner, Memphis, Tenn., who was reelected secretary. Other officers named at the convention were Melvin Parker, Memphis, vice president, and M. O. Carter, Memphis, treasurer. The group was organized Aug. 12, 1959, by merger of the Mississippi Cottonseed Crushers Assn. and the Valley Oilseed Processors Assn.

sponsored by Texas Agricultural Experiment Station; chm., Ewing E. Brown, State Chemist's Office, Texas Agricultural Experiment Station.

Aug. 2-5 — Poultry Science Assn.; University of California, Davis; sec., C. B. Ryan, Texas A&M College, College Station.

Aug. 11 — Michigan Swine Day; Michigan State University, East Lansing; Hugh E. Henderson, Extension Specialist, Animal Husbandry.

August 12 — Ohio Dairy Day; Ohio Agricultural Experiment Station, Wooster.

Aug. 14-18—Business Management Program, sponsored by Southeastern Poultry & Egg Assn., University of Georgia, Athens; sec., Harold E. Ford, 235 East Ponce de Leon Ave., Decatur.

Aug. 18—Michigan Cattle Feeders Day; Michigan State University, East Lansing; Hugh E. Henderson, Extension Specialist, Animal Husbandry.

August 19—Ohio Swine Day; Ohio Agricultural Experiment Station, Wooster.

Aug. 25—Michigan Lamb Feeders Day; Michigan State University, East Lansing; Hugh E. Henderson, Extension Specialist, Animal Husbandry.

Aug. 29-Sept. 1 — Georgia Poultry Institute; Rock Eagle, Georgia; Milton Dendy, Extension Poultryman, College of Agriculture, University of Georgia, Athens.

Sept. 1-6 — International Congress on Nutrition; Sheraton-Park Hotel, Washington, D.C.; sponsored by International Union of Nutritional Sciences; sec., Milton O. Lee, 9650 Wisconsin Ave., Washington 14, D.C.

Sept. 14-15—Maryland Feed Servicemen's Conference; University of Maryland, College Park; chm., Wade H. Rice, Extension Service.

Sept. 14-16—National Feed Ingredients Assn.; Liggetts Holiday Inn, Burlington, Wis.; sec., Paul W. Bonewitz, 1023 Equitable Bldg., Des Moines, Iowa.

Sept. 21-23 — Feed Production School; Continental Hotel, Kansas City; sponsored by Feed Production School, Inc.; pres., Lloyd Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Sept. 22-23 — Arkansas Formula Feed Conference; University of Arkansas, Fayetteville; chm., Dr. E. L. Stephenson, Department of Animal Industry and Veterinary Science.

Oct. 2-4 — Poultry Industries of Louisiana, Inc.; Bellemont Motor Hotel, Baton Rouge; sec., Clyde Ingram, Knapp Hall, Louisiana State University, Baton Rouge.

Oct. 4-6 — Northeastern Poultry Producers Council; Exposition and Convention; Onondaga County War Memorial Bldg., Syracuse, N.Y.; Doris Endebrock, Exposition Mgr., 10 Rutgers Place, Trenton 8, N.J.

Oct. 5-7—Texas Nutrition Conference, Texas A&M College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

Oct. 11-12—Virginia State Poultry Federation convention and trade show; Hotel Roanoke, Roanoke, Virginia; sec., J. Paul Williams, 615 East Franklin Street, Richmond 19.

Oct. 12-13 — Association of American Feed Control Officials Annual Meeting; Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Feed and Fertilizer Dept., Agricultural Experiment Station Bldg., University of Kentucky, Lexington.

Oct. 16-18—Kentucky Poultry Federation and Kentucky Poultry Improvement Assn.; Kentucky Hotel, Louisville; John W. Tuttle, field manager.

Oct. 16-20 — Business Management Program; sponsored by the Southeastern Poultry & Egg Assn., University of Georgia, Athens; sec., Harold E. Ford, 235 East Ponce de Leon Ave., Decatur.

Oct. 17-18—California Animal Industry Conference; Fresno Memorial Auditorium, Fresno, Cal.; co-sponsored by California Hay, Grain & Feed Dealers Assn. and University of California; chm., Bert Maxwell, Nulaid Farmers Assn., Petaluma; association office, 1400 Tenth St., Sacramento 14.

Oct. 20-21—Cooperative G.L.F. Ex-

(Turn to CALENDAR, page 60)

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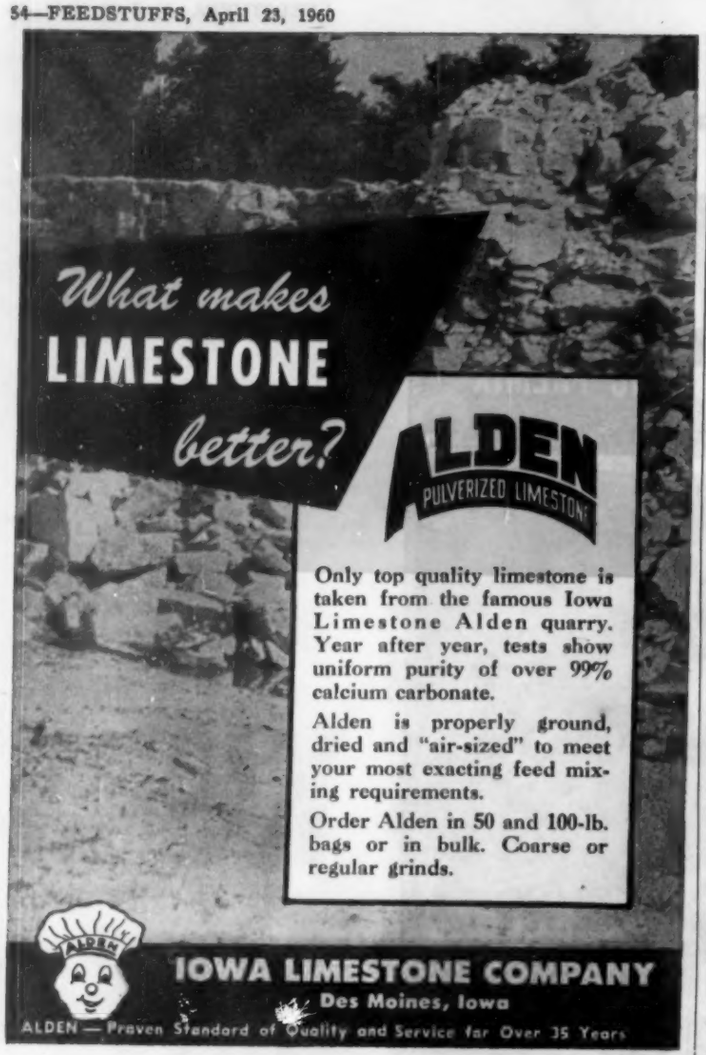
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Protein and Amino Acid Nutrition of Swine

By Dr. R. O. Nesheim
The Quaker Oats Co.

EDITOR'S NOTE: The accompanying article is from a talk on "Economic and Nutritional Considerations in Pork Production in 1960" given by Dr. Nesheim at the American Dehydrators Assn. convention at Colorado Springs. This article includes information and data from the portion of the talk dealing with protein and amino acids. Dr. Nesheim is in charge of livestock feeding research for Quaker at Barrington, Ill.

The production of meat-type hogs must be based upon a program of meat-type breeding and meat-type feeding. Careful selection and testing of boars and sows must be practiced to increase the number of meat-type hogs being produced. Breeding must be the basis of meat-type hog production.

Proper nutrition and feeding practices must also be followed if stock bred for meat-type production are to fulfill their hereditary capacity. Adequate levels of protein of proper quality to supply the necessary amounts of the essential amino acids must be supplied if pigs are to produce lean carcasses up to their inherited capacity. This is well illustrated in work reported by Prof. Hjalmar Clausen (1) summarized in Table 1.

TABLE 1. Influence of Feeding Increasing Quantities of Protein on Meatiness of Pigs

Limited Fed on Barley From 20-90 Kg. in Weight

Skim milk per pig daily, Kg.	0.5	1.0	1.5
Protein conc. per pig daily, gm.	40	75	110
Barley	Up to level for limited feeding		
Daily gains in gm.	446	497	513
S.R.U. per kilo grain*	4.08	3.68	3.57
Average thickness backfat, Cm.	3.78	3.31	3.42
Fat in per cent of meat in cross section	175	137	129

*One kilogram of total digestible nutrients = 1.35 Scandinavian Feed Units.

Protein level in the ration is important, but more important is the level of the various essential amino acids in relation to the pig's requirements.

The effect of amino acids supplementation of a ration upon weight gains, feed conversion and carcass fat is shown in a summary of a feeding trial using weanling rats at our Quaker Oats Laboratory.

Weanling rats were fed 16% protein rations with and without 10% corn oil added and with various amino acid supplementations for a period of 21 days. The rats were killed, digestive tracts removed and whole carcasses were then analyzed for fat (Table 2).

The addition of methionine to the ration without fat tended to reduce carcass fat while in the fat supplemented ration a combination of methionine, lysine and threonine was required to reduce carcass fat to the greatest extent. Further research is needed along this line to determine the levels of amino acid that are required for optimum leanness of carcass. Theoretically, they should be close to those needed for maximum feed conversion at a given energy level.

While adequate protein and amino acid levels are important in rations to produce lean carcasses, we cannot expect by feeding excessive levels of protein to produce carcasses leaner than the genetic capacity of the pig to which they are being fed.

Limiting Energy

An approach that has been suggested as a means of reducing carcass fat has been to restrict energy intake. This is the method followed in the production of the high quality pork in Denmark. Restriction by hand-feeding is not popular in this country because of the extra labor involved and the added time to market. If restriction is to be followed here, it will quite likely have to be accomplished by mechanical means. The data in Table 3 also presented by Prof. Hjalmar Clausen (1) illustrate the effect of restricting energy on carcass quality.

The possible use of low energy rations for finishing pigs has been studied both in the U.S. and Denmark. Dilution of high energy rations with corn cobs, oat hulls, alfalfa hay or oat straw has been tried. Such studies reveal that while fat content of the carcass may be reduced in this manner the fat that is produced will be soft, and feed efficiency is im-

TABLE 3. Limited Feeding vs. Ad Lib Feeding From Self Feeders

	Limited feeding	Ad lib feeding from self-feeders*
Average backfat thickness in Cm.	3.14	3.60
Per cent pigs in Grade I	98	43

*Self-feeders closed two days weekly (not in succession).

TABLE 2. Effect of Amino Acid Supplementation on Carcass Fat of Rats

Ration fed	Amino acid added	21-Day gain, gm.	Feed/gain	Carcass fat, %
Basal	None	120.9	2.60	8.8
Basal	+ Methionine (M)	121.1	2.39	7.9
Basal	+ Threonine (T)	110.3	2.56	8.9
Basal	+ Lysine (L)	109.1	2.67	8.5
Basal	+ M + T	113.3	2.44	8.4
Basal	+ M + L	117.1	2.52	8.3
Basal	+ T + L	122.1	2.58	9.3
Basal	+ T + L + Tryptophan (Tr.)	114.0	2.56	9.1
Basal	+ M + T + L	123.8	2.33	8.2
Basal	+ M + T + L + Tr.	127.0	2.34	8.0
Basal—10% corn oil	None	110.9	2.54	10.8
Basal—10% corn oil	+ M	100.0	2.50	10.9
Basal—10% corn oil	+ T	97.5	2.54	12.0
Basal—10% corn oil	+ L	104.9	2.57	11.6
Basal—10% corn oil	+ M + T	99.3	2.48	10.5
Basal—10% corn oil	+ M + L	101.3	2.45	9.8
Basal—10% corn oil	+ T + L	102	2.53	10.0
Basal—10% corn oil	+ T + L + Tr.	114.4	2.47	11.3
Basal—10% corn oil	+ M + T + L	117.9	2.19	9.3
Basal—10% corn oil	+ M + T + L + Tr.	114.1	2.19	9.0

TABLE 4. Ground Oat Straw as an Energy Diluent for Growing-Finishing Pigs

Group	1	2	3	4
Per cent barley in basic feed replaced by ground oat straw	0	10	20	0
Level of feeding	Semi-Ad Lib		Limited	
Per cent fiber per kg. dry matter in ration	4.7	8.0	11.1	4.6
Average daily gain, gm.	680	650	592	569
S.F.U. per kg. gain	3.41	3.51	3.69	3.40
Dressing percentage	72.8	71.8	70.7	72.9
Average backfat thickness, cm.	3.56	3.41	3.31	3.43
Firmness of backfat (0-15)	13.6	13.4	12.7	13.2
Total feed consumption in kg. per pig from 20-90 kg.				
Skim milk in kg.	172	180	196	206
Protein concentrate in kg.	10.4	11.0	11.9	11.7
Grain mixture in kg.	172	180	196	206
Ground oat straw in kg.	0	20.6	44.7	0
Total feed consumed, kg.	203.9	234.1	277.1	243.5

(Skim milk reduced to 10% moisture basis.)

paired to the point that there is little or no value for the diluent used in the ration. This means that the cost of producing pork in this manner is increased. The data in Table 4 using ground oat straw reported by Prof. Clausen (1) illustrates this fact.

It is evident that while the use of oat straw as a filler is effective in reducing backfat, it did result in soft fat, and it did also result in a marked increase in feed required to produce the gain even when compared to the group on limited feeding.

We expect to see further research regarding the effect of amino acid supplementation of high energy rations on carcass composition and mechanical means of limiting feed intake in future work dealing with the production of meat-type pigs. The real challenge possibly lies in breeding a pig that can be self-fed a high energy ration to produce most rapid growth and economical gains, and a lean carcass.

Some of the current emphasis on research in the swine nutrition field appears to be in the areas of amino acid requirements and amino acid supplementation of practical rations.

Information regarding the amino acid requirements of pigs of various weights has been summarized by Becker (2) in Table 5.

Since cereal grain proteins are very deficient in lysine most emphasis has been upon the possible use of synthetic lysine to supplement rations of growing-finishing swine. Methionine is also of interest because corn-soybean meal rations appear to be quite borderline in meeting this requirement.

A possible use of synthetic lysine and methionine in swine ration would be to reduce protein levels necessary for weanling pigs from about 16% to possibly as low as 12%. The possibility of this is shown by the information in table 6 which gives the calculated amino acid levels of fortified corn-soybean meal rations at various protein levels.

From inspection of the table 6, it is evident that supplementation with only lysine and methionine will not be satisfactory in meeting the requirements of the weanling pig when the protein level is below 12%. Several other amino acids appear to become deficient or borderline at this point; namely threonine, tryptophan, isoleucine and histidine. Thus, more extensive substitutions of amino acids for protein sources such as soybean meal would be dependent upon additional amino acids being available. As more and more amino acids are required to be used, the problem of their economically competing with high quality natural proteins as

TABLE 5. Calculated Amino Acid Needs of the Weanling Pig at Various Protein Levels (Percent of the Diet)

Amino acid	Calculated need at dietary protein levels of: 12%	16%	20%	24%
Arginine	.21	.25	.29	.31
Histidine	.19	.23	.26	.28
Isoleucine	.42	.52	.58	.63
Leucine	.57	.67	.77	.83
Lysine	.61	.74	.84	.90
Valine	.38	.46	.52	.56
Methionine	.40	.50	.56	.60
Phenylalanine	.44	.54	.61	.65
Threonine	.37	.45	.51	.55
Tryptophan	.10	.12	.14	.16

TABLE 6. Calculated Amino Acid Needs of the Weanling Pig at 16% Protein Level (Percent of the Diet)

Amino acid	Calculated need at 16% protein	Supplied by a fortified corn-50% protein soybean meal ration with protein level of: 16	14	12	11
Arginine	.25	.94	.79	.64	.56
Histidine	.23	.41	.36	.30	.27
Isoleucine	.52	.86	.74	.60	.54
Leucine	.67	1.74	1.60	1.44	1.36
Lysine	.74	.80	.65	.49	.41
Methionine	.30	.28	.26	.24	.23
Cystine	.20	.21	.19	.16	.14
Total sulfur AA	.50	.49	.45	.40	.37
Phenylalanine	.54	.76	.67	.57	.52
Threonine	.45	.66	.57	.47	.42
Tryptophan	.12	.23	.19	.15	.12
Valine	.46	.87	.76	.64	.57

TABLE 7. Protein Levels, Methionine, and Lysine for 100-lb. Pig

(Test Period 42 Days)

Protein level	—Amino acid supplementation— Methionine as MHA	Lysine as L. lysine	Average daily gain	Feed/lb. gain
16	....	....	1.77	3.09
14	....	....	1.56	3.32
14	+ .0375%	....	1.48	3.69
14	+ .0375%	+ .075%	1.64	3.67*
14	+ .0375%	+ .15%	1.70	3.10
12	....	....	1.43	3.44
12	+ .0375%	....	1.51	3.34
12	+ .075%	....	1.57	3.31
12	+ .375%	+ .075%	1.48	3.36
12	.075%	+ .15%	1.61	3.15
12	.075%	+ .225%	1.61	3.26
12	.075%	+ .30%	1.63	3.31

*Considerable feed wastage occurred in this lot which very likely accounts for the result here being out of line with the rest of the data.

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sources of these amino acids will become more acute.

Whether amino acids will be used in swine feeds will depend upon the comparative cost of adding them from high quality protein sources or as the amino acid itself. A recent comparison of the use of 50% protein soybean meal or methionine and lysine as sources of amino acid in finishing rations for 100 lb. pigs at the Ful-O-Pep Research Farm provides a basis for evaluating the relative cost of the two sources.

The following test conducted at the Ful-O-Pep Research Farm comparing 16, 14 and 12% protein corn, 50% protein soybean meal rations for pigs of approximately 100 lb. initial weight with and without lysine and methionine supplementation provides an example of how such a comparison may be made.

The calculated lysine, methionine and cystine contents of the 3 basal rations are shown below:

	Protein ration		
	16%	14%	12%
Lysine	.80	.655	.491
Methionine	.278	.261	.242
Cystine	.213	.186	.157
Total	.491	.447	.399

The feeding plan and data obtained are summarized in Table 7.

The addition of .375% MHA or .75 lb. per ton to the 14% protein ration produced performance equal to that of the 16% protein. With corn priced at $39.05 per ton and 50% protein soybean meal at $70.70 per ton, .75 lb. of MHA is worth $1.46 or 1 lb. of MHA would be worth $1.95. Since the actual cost of 1 lb. of MHA is approximately $1.20 per pound, the economy of using MHA is evident.

The addition of 1.5 lb. of MHA (.075%) and 3 lb. of lysine (.15%) to the 12% protein ration produced performance approximately equal to the 16% protein ration. Using corn at $39.05 per ton and 50% protein soybean meal at $70.70 per ton and subtracting the cost of 1.5 lb. of MHA at $1.20 per pound, 3 lb. of lysine would be worth $1.57 or $0.52 per pound. This is considerably under the current prices quoted for this amino acid.

♥ ♥

BIBLIOGRAPHY

(1) Summarized from talk by Prof. Hjalmar Clausen, professor of animal husbandry at Royal Veterinary and Agricultural College, Copenhagen, Denmark, presented at the 1959 Cornell Nutrition Conference.

(2) Becker, D. E.—The Protein and Amino Acid Nutrition of Swine; presented at Twentieth Annual Animal Nutrition and Health Short Course, University of Minnesota, St. Paul, Minn., Sept. 14, 1959.

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Dr. Wise Burroughs and his associates in the department of animal husbandry fed 12 lots of yearling cattle a high corn fattening ration for 176 days.

Half of the cattle lots received high-moisture (30%) ground ear corn from an air-tight silo. The remaining six lots received conventional dry (14%) ground ear corn which had been stored in a slat crib. Results definitely favored the feeding value of the high-moisture corn over the conventional dry corn.

Dr. Burroughs said the good results with high-moisture corn prompted the testing of high-moisture grain sorghum in a fattening cattle ration. The sorghum grain was fed to one lot of cattle, and results were compared with those from cattle receiving low-moisture cracked shelled corn. The results were reported as "disappointing."

Feeding value on a dry-matter basis was about 25% better for the dry corn grain than for the high-moisture grain sorghum. Dr. Burroughs reported that the low feeding value of the sorghum apparently was due to poor digestion of the sorghum grain.

Anaplasmosis Studied

NEW YORK—Anaplasmosis, an infectious disease of cattle which causes extensive losses each year, is being studied by Dr. L. E. Hawkins at Oklahoma State University. His work is being supported by a grant-in-aid from American Cyanamid Co., New York.

In previous work at Oklahoma State, it was found that feeds containing Aureomycin chlortetracycline at levels to provide .5 mg. per pound of body weight aided in the prevention of the disease, according to a report from Cyanamid. Dr. Hawkins hopes to develop new procedures for using Aureomycin in the spot-treatment of range conditions in free-choice salt mixtures.

FEED MILL OPENS

STANHOPE, IOWA—The Farmers Cooperative Elevator held an open house at their recently completed $175,000 feed mill.

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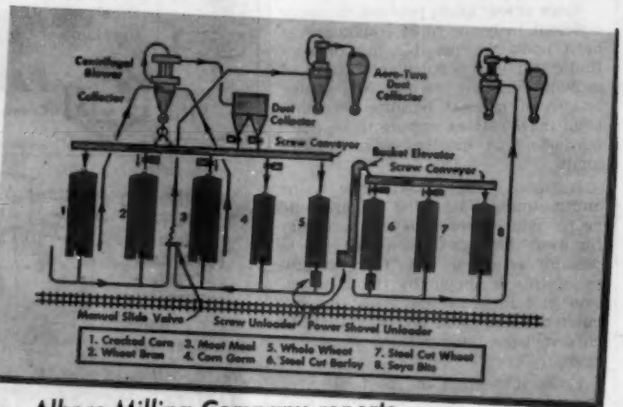

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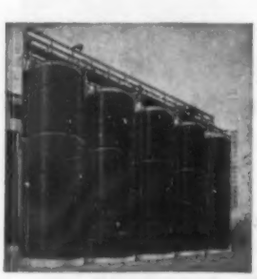

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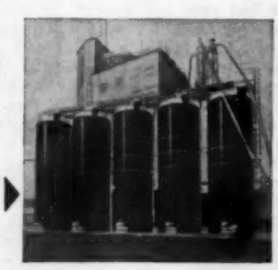

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Stable dry vitamin A products.

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Oil soluble Vitamin protecter and pigmentation aid.

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Dry, free-flowing partially hydrogenated animal fat.

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For better poultry pigmentation.

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Effective dog food deodorant.

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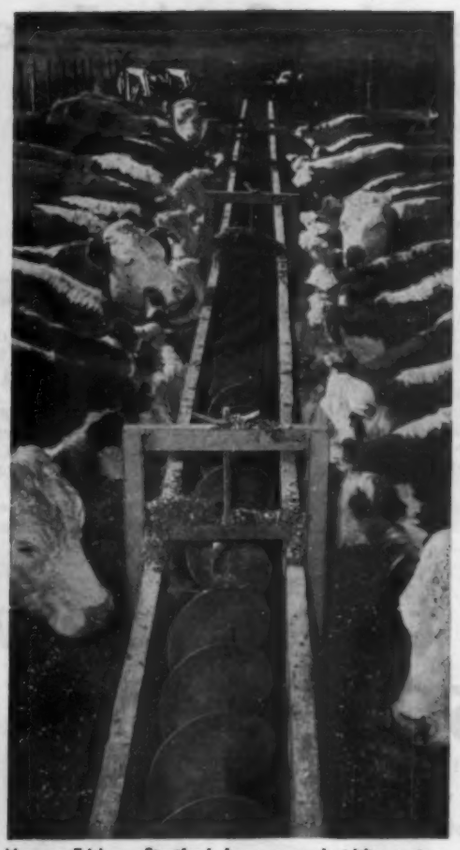
For an investment of around $700 in motors and materials, Art Linder and his son, Paul, of Hartley, Iowa, press buttons and feed 250 to 300 cattle in 10 to 15 minutes. With Stilbosol in the ration, the Linder cattle average 2½ to 3 lbs. daily gain.



Norman Erickson, Stratford, Iowa, uses electricity, motors, augers, switch panels, roughage and Stilbosol to keep his feeding costs at 18¢ per pound. "It would take us four times as long to feed without our mechanical equipment," Norman declared. "Stilbosol gives us ½ lb. more daily gain."

Roger L. Willrett's mechanical feed-handling system (Malta, Ill.) allows him to deliver his grain-roughage ration to 250 head in 10 minutes. "It would take 1½ hours by hand, 45 minutes by feed wagon," Roger explains.

Here's how 6 cattle feeders cut costs

These outstanding feeders use new ideas in laborsaving equipment plus high-efficiency Stilbosol rations.

by Eugene S. Hahnel

Verle Hunt of Ackley, Iowa, with this unique auger tube can now feed his cattle 6 times faster than before. Verle considers his $700 investment a bargain. Stilbosol, too. "We get an extra ½ lb. gain a day," he says, "and, it fits in well with our laborsaving program."

A few flipped switches put grain and roughage on a series of moving belts, which then deliver the final ration to 300 head on the Harold Alfredson farm near Big Rock, Illinois. Mechanization cuts an hour or more hand operation to 15-20 minutes.

A circular feed bunk, serviced by a traveling auger mounted in a 9" U-shaped trough, allows Ted Hebert of Pana, Ill., to push-button feed 100 cattle in 5 minutes. "I think a fellow would be foolish to try and make money feeding cattle without Stilbosol," this efficiency-minded feeder volunteered.

Stilbosol

(diethylstilbestrol premix, Lilly)

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Stilbosol is Eli Lilly and Company's trademark for diethylstilbestrol premix which is manufactured and sold under exclusive license granted by Iowa State College Research Foundation, Inc., under its U. S. Patent No. 2751303.

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A Puzzling Problem for Cattle Feeders

Condition Shows Symptoms of Vitamin A Deficiency; Fortification of Rations Suggested.

By Dr. A. L. Neumann
Animal Science Department
University of Illinois, Urbana

A perplexing and puzzling problem is becoming an ever-increasing occurrence in the feedlots of cattle feeders through the country, but in the Corn Belt area in particular. This condition, which exhibits most of the symptoms of a mild to severe vitamin A deficiency, is being found in feeder operations of about every kind. However, a rather familiar pattern is seen quite frequently.

Generally the feeder is a heavy user of corn silage, and furthermore the farms on which it is often found are the more fertile farms on which cattle feeding has a long history. Such experienced feeders, knowing the value of heavy manure applications in increasing tonnage yields of silage, pile it on plenty heavy. Recent favorable results with increasing planting rates have often encouraged them to step up their plant populations to as high as 30,000 per acre compared with a more normal 14 to 16 thousand. Because distance from the silo can increase hauling costs considerably, silage fields are often located near the feedlots year after year. Luxuriant weed growth is often found in the lanes and feedlots used for new cattle received in the fall on these farms.

Although the condition may occasionally appear soon after cattle have been placed on feed, it more often occurs after cattle have been on a heavy feed of silage for most of the winter. Here it should be pointed out that this is not an exclusive problem of the silage feeder, for cases have been seen in hay-fed cattle as well.

Adequate in Carotene

Certainly vitamin A deficiency is not a new problem but the intriguing thing about the present situation is that it is occurring on rations that should be and are more than adequate in carotene, the precursor of vitamin A. In fact, silage has been highly recommended over the years because of its high carotene content, and has been one of our good selling points.

Many experienced veterinarians feel that there are often symptoms present which are typical of avitaminosis. Typically this condition as found in the field manifests itself by all-round poor performance—reduced feed intake, reduced gains, increased feed requirements per unit gain, dead haircoats and listlessness. Numerous cattle will be stiff and cramped in their movements, resembling founder. Some cattle will show the marked edema or swellings in the hocks, briskets and, in particular, at the hoofheads. Some cases of excessive slobbering and nasal discharge have been seen, not unlike that seen in cases of "rednose." Upon sudden movement some steers show convulsive seizures or fainting spells. Nightblindness, though not easy to measure, has been noted. Absent in most cases are watery, inflamed eyes, diarrhea and pneumonia, symptoms often associated with avitaminosis.

Respond to Vitamin A

Unfortunately in only a few cases have blood or liver vitamin A values been obtained, and the results have been inconsistent. It should be pointed out that most of the cases seen or reported upon to the writer responded to treatment with vitamin A, either when included in the ration or when injected. In some instances the response lasted only three or four weeks with the cattle affected returning to their former condition.

This problem is presenting a real challenge to research workers both in academic and in commercial circles. The solution lies in first finding the cause. It should be added that while crop cultural practices may be involved, no one is ready to admit that the solution lies in the direction of going back to the older systems of crop production. Research is in progress at a few experiment stations, and considerably more is being planned by others.

As of now, fortification of cattle rations with vitamin A or possibly its precursors seems the best protection against this condition, especially when heavy silage feeding is in practice. The level of fortification to use is an open question, but a fortification level at least equal to or slightly above NRC levels, as given for true vitamin A, would be good insurance.

Trade UP to the new Steinlite 500-RC

Proven best for accuracy . . . speed . . . simplicity of operation . . . by the thousands of elevators across the country who have bought more SEEDBURO-STEINLITE testers than all other makes combined!

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INSTANT ACCURACY lets you check the automatic meter reading quickly, without grinding or damaging the sample.

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NO DIALS to adjust, no buttons to push. Just drop the sample into the test cell and read the simple scale.

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BIG 250 GRAM SAMPLE is more truly representative of the moisture content of the entire load.

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ONE-SCALE READINGS for all moisture ranges and eye-level thermometer give you the information at a glance.

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RELIABLE RESULTS from the elimination of human errors. Large sample minimizes the importance of weighing errors.

Accurate Testing makes the difference

Designed specifically for fast, *accurate* testing of the moisture content of whole grains, the Seedburo-Steinlite 500-RC can repay its purchase price with savings realized on just three carloads of grain. That's just one of the many reasons you should have the accuracy of the 500-RC in your operation.
This is accuracy you can depend upon . . . as thousands of users who have made Seedburo-Steinlite Moisture Testers the country's best-selling tester have already discovered. Years of research and improvement have gone into the new 500-RC. A full one-year factory guarantee is your assurance that the Seedburo-Steinlite 500-RC is the finest moisture tester value you can buy.

The 500-RC was specifically designed to test not only normal samples but also samples from high moisture grain, grains with mixed moisture content, rain-dampened grain, and other samples which are difficult to test accurately.

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Arthur Gill, Clois Keyes Join Ellis & Co.

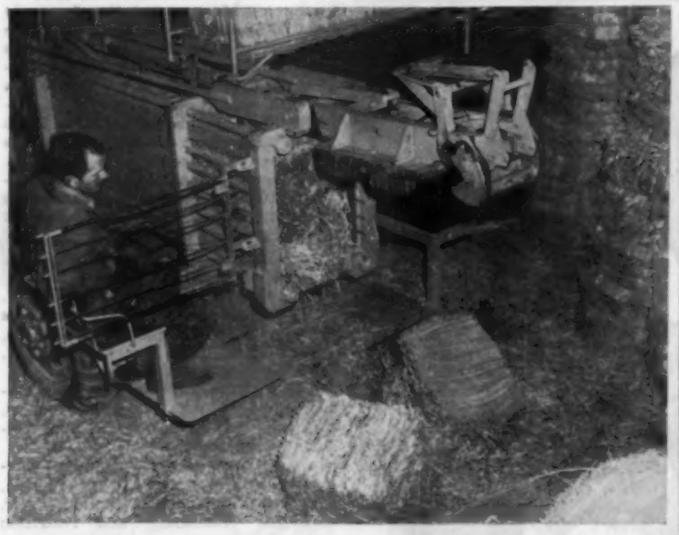
ST. JOHN'S, NEWFOUNDLAND—Arthur J. Gill, formerly general manager and vice president of the Silmo Chemical Corp., is now associated with J. C. Ellis & Co., Ltd., of St. John's. Clois W. Keyes, who represented Silmo in the Southwest, has also joined the Ellis firm.

Mr. Gill is in charge of the production of cod liver oil and cod liver solubles at the St. John's plant, and handles the distribution of these products in the eastern U.S. Mr. Keyes handles the distribution in the Southwest.

FEED FIRM OPERATING

CASS CITY, MICH.—Farm Bureau Services, Inc., is now operating the former Law Feed & Supply Co. here as a Cass City branch. Former owner Clinton Law is continuing as manager.

HAYPAX HAY BALING MACHINE—This is a new hay processing machine that is being used in the San Joaquin Valley in California (Feedstuffs, April 9). The complete compressor and equipment of the Haypax hay baling machine is mounted on a small semi-trailer pulled by a truck tractor (above). The new portable machine processes an ordinary bale of hay into less than half its height, then slices this smaller bale in half (below). The machine weighs around 6 tons and requires a crew of five men to operate, according to its developer, W. E. Straight, manager of the San Joaquin Valley Hay Growers Assn., Tracy, Cal.



Plans Being Made For 13th Delmarva Poultry Festival

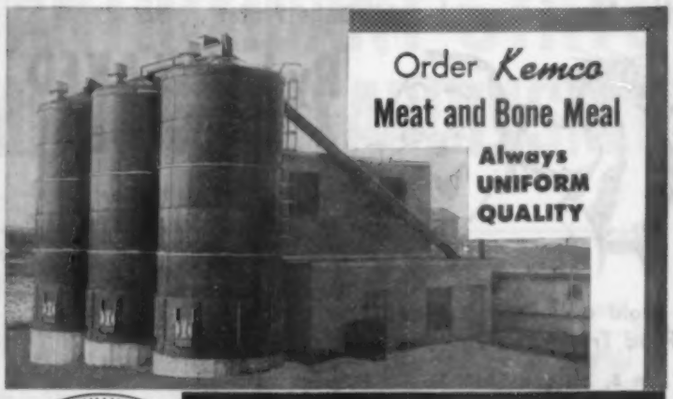
SELBYVILLE, DEL.—Plans are being made for the 13th annual Delmarva Chicken Festival at Selbyville June 17-18. A meeting of the local committee chairmen and their committees was held recently with officials of the Delmarva Poultry Industry, Inc., and chairmen of past festival committees.

Every state in the U.S. is being invited to the National Chicken Cooking Contest held in conjunction with the festival. Some 250,000 entry blanks are being distributed throughout the nation's stores through the joint effort of the Delmarva Poultry Industry, Inc., Georgetown, Del., and the Poultry & Egg National Board, Chicago.

William Rodney, Laurel, DPI representative and general chairman, said it is hoped to have each of the 50 states conduct their own chicken cooking contest, and that each one will then send the winner and alternate to Selbyville for the national championship cook-out in June.

FORMER FEED MAN DIES

AUBURN, WASH.—Alonzo F. Smith, 71, who operated the Smith Feed Co. here, passed away in Seattle, where he had made his home for several years.



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...then schedules shipments for dependable on-TIME delivery, from our mill to yours.

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DOG FOOD

And it's no secret that many dealers prefer to sell Ryde's Flaked Dog Food. In all its 20 years on the market it has proven a **profitable repeat** seller.

Stock and sell this QUALITY dry dog food that enables you to offer your customers more for their money.

Sold exclusively to the Feed Trade and Pet Shops

In 5, 25, and 50-lb. bags for customer convenience

RYDE & CO. 3939 S. Union Ave., Chicago 9, Ill.

CALENDAR

(Continued from page 52)

change, Inc.; stockholders annual meeting; Onondaga War Memorial Bldg., Syracuse, N.Y.

Oct. 27-28—National Swine Industry Conference; University of Kentucky, Lexington.

Oct. 28—Illinois Sheep Day; University of Illinois, Urbana; chm., Dr. U. S. Garrigus, Animal Science Dept.

Nov. 2-3—Kansas Poultry Assn.; Brookview Hotel, Wichita; sec., Harry J. Reed, Box 663, Manhattan.

Nov. 2-3—Illinois Feed Assn.-Illinois Poultry & Hatchery Federation, mory, Springfield; sec., IFA, Dean M. Clark, 141 W. Jackson Blvd., Chicago 4; sec., IPHF, Aubrey Harless, Shelbyville, Ill.

Nov. 3-4 — Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Dr. H. H. Williams, Biochemistry and Nutrition Dept., Savage Hall, Cornell University, Ithaca, N.Y.

Nov. 9-12 — National Renderers Assn.; Statler-Hilton Hotel, Dallas, Texas; sec., Miss Jamie Fox, 30 N. LaSalle St., Chicago, Ill.

Nov. 16-17—Missouri Poultry Improvement Assn.; Hotel Continental, Kansas City; sec., E. M. Funk, Columbia, Missouri.

Nov. 16-18—Florida Nutrition Conference; University of Florida, Gainesville; chm., Dr. J. P. Feaster, Animal Husbandry and Nutrition Dept.

Nov. 25-26 — American Society of Animal Production; Hotel Sherman, Chicago, Ill.; sec., Clair E. Terrill, Animal Husbandry Research Division, Agricultural Research Center, Beltsville, Md.

1961

Jan. 12-13—Michigan Feed & Grain Dealers Assn.; Michigan State University, Kellogg Center; sec., Nevel Pearson, P.O. Box 472, East Lansing.

Jan. 16-17—Northwest Retail Feed Assn.; Hotel Pick-Nicollet, Minneapolis; sec., W. D. Flemming, 112 Grain Exchange Bldg., Minneapolis, Minn.

Jan. 23-25—Farmers Grain Dealers Assn.; Civic Memorial Auditorium, Fargo, N.D.; sec., Lloyd C. Hanson, 513 Black Bldg., Fargo.

Feb. 8-9—Pacific Northwest Feed Mill Production School; Hotel Leopold, Bellingham, Wash.; sponsored by Washington State Feed Assn.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

Feb. 10 — Washington State Feed Assn., annual convention; Hotel Leopold, Bellingham, Wash.; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4.

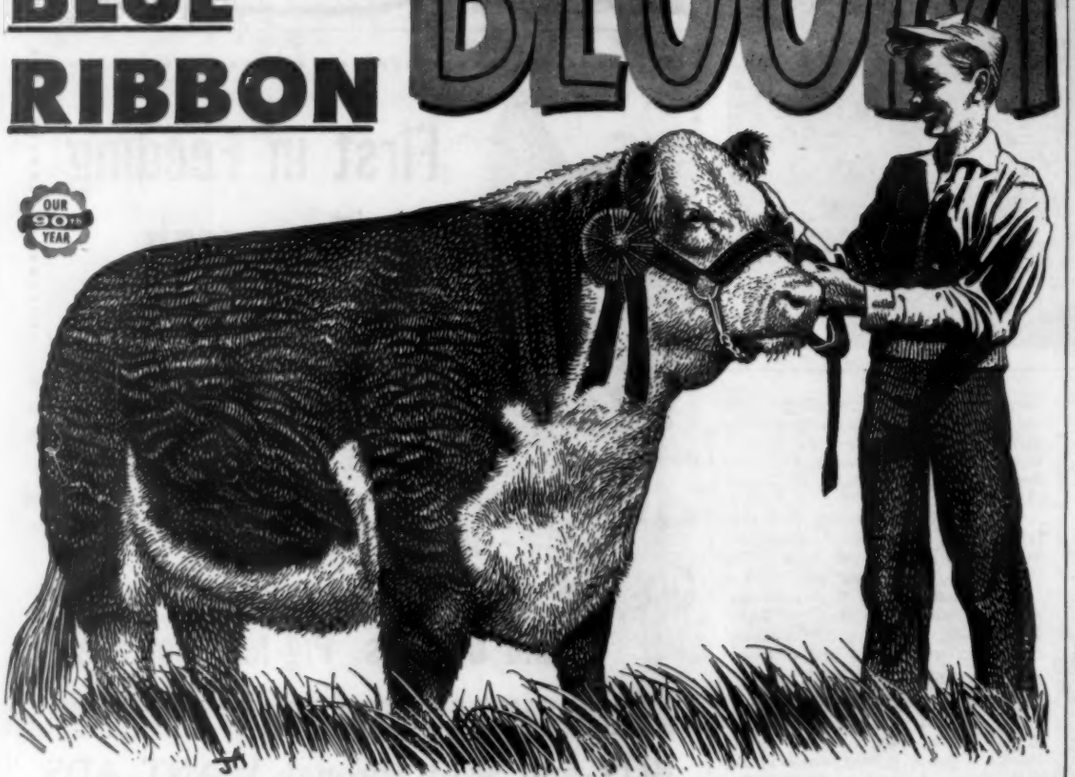
Feb. 10-11—Poultry Fact Finding Conference; sponsored by Institute of American Poultry Industries; pres., Harold M. Williams, 59 E. Madison, Chicago 2.

Feb. 19-21 — Ohio Grain & Feed Dealers Assn.; Neil House, Columbus; sec., George G. Greenleaf, 5625 N. High St., P.O. Box 121, Worthington.

Dave Livingston

KENT DEALER BANQUETS—Dave Livingston, farmer and humorist, supplied the chuckles at a series of seven annual dealer appreciation banquets put on by Kent Feeds, Inc., Muscatine and Sioux City, Iowa. The banquets were designed to thank all Kent dealers who helped produce the sales record which made 1959 a record-breaking tonnage year for Kent. More than 1,900 Kent dealers, their staffs and wives attended the banquets. Outstanding tonnage award certificates were presented to 133 dealers by Otis Joiner, general manager of Kent Feeds.

For **BLUE RIBBON BLOOM**



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A 30% Beef Finisher based on quality Purdue Supplement "A"

Minnesota Linseed Meal	330 lbs.
Ground Corn	270.5
Dehydrated alfalfa meal	140
Liquid molasses	140
Bonemeal	52
Urea (262% protein equiv.)	50
Salt, Trace mineralized	17
Vitamin A & D Concentrate... (4,540,000 U.S.P. units A and 567,000 U.S.P. units D per lb.)	.5
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For the best bloom and the best market grade make sure you use Minnesota brand linseed oil meal and feed a high energy fattening ration. High grain rations provide more energy per pound for prime finishing than roughage rations.

Your customers can depend on Minnesota Linseed Meal. In your own formula, with the Purdue formula—or by the bag for feeding straight—it provides time-tested mucin that gives feeder stock a blue-ribbon bloom. Make it your "first choice" suggestion when your customers want more milk or a higher market price for their cattle, sheep and hogs—or a ribbon at the show.

There's a ***QUALITY DIFFERENCE!***

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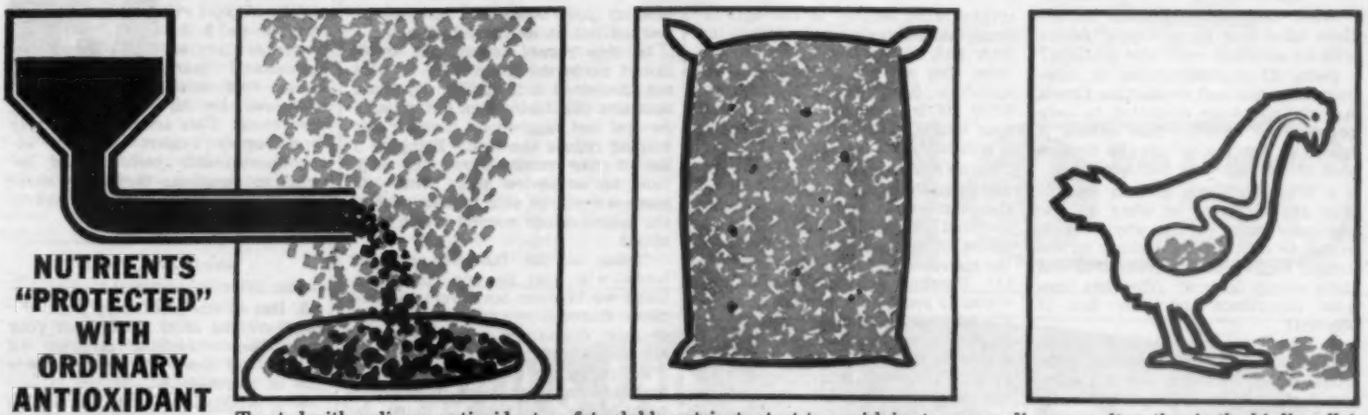
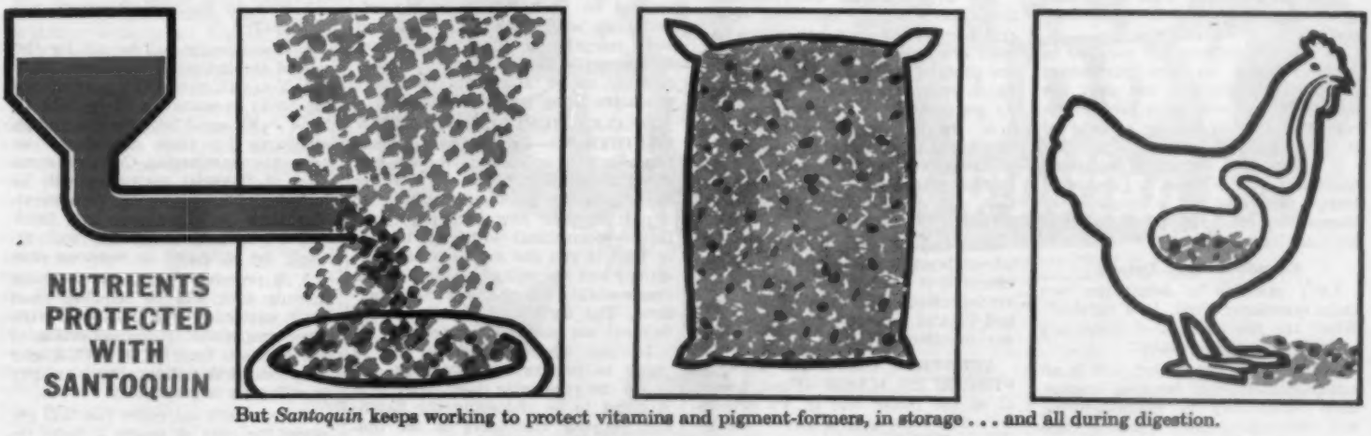


Treated with ordinary antioxidant... fat soluble nutrients start to vanish in storage... disappear altogether in the bird's gullet.



But *Santoquin* keeps working to protect vitamins and pigment-formers, in storage . . . and all during digestion.

ONLY SANTOQUIN® FOOD VALUE GUARD STOPS OXIDATION WHERE IT COUNTS MOST . . . IN THE BODY OF THE BIRD

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SANTOQUIN SAFEGUARDS... like no other poultry feed antioxidant can

	Ordinary Antioxidant	SANTOQUIN
Prevents rancidity	Yes	Yes
Protects vitamin A through digestion and metabolism	No	Yes
Preserves carotenes	No	Yes
Improves pigmentation by guarding xanthophylls	No	Yes
Acts in the bird like vitamin E to prevent diseases	No	Yes

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- ☐ "Question and Answer" brochure on Santoquin
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Banks and PCA's Can Help Feed Men Solve Accounts-Receivable Problem

By Dr. R. A. Bailey
Ohio State University

EDITOR'S NOTE

The results of a survey among 35 representatives of commercial banks and Production Credit Associations are summarized and interpreted by Dr. R. A. Bailey, professor of agricultural economics and rural sociology, Ohio State University, in this article adapted from a talk he presented at an agricultural marketing conference sponsored by his department. This article should help farm supply dealers with an accounts-receivable problem find answers to questions they have about getting help from financial institutions.

Dr. Bailey

What help can financial institutions offer the farm supply dealer with an accounts receivable problem?

Some 35 representatives of commercial banks and Production Credit Associations were consulted to help provide the answer. This article is based on reaction of the 35 finance men to the following two questions:

1. What have you in your institution already done or what do you presently have in the way of programs or facilities for picking up the accounts receivable of grain, feed and farm supply dealers? What has been your experience and how has it worked?

2. What recommendations would you make regarding possible additional means by which you might assist dealers in preventing the further build-up of their accounts receivable?

Two fundamental facts are clear, as we summarize and interpret their ideas:

1. There is no easy pat solution to your problem; no new miraculous process by which you can shift the burden of financing your present receivables load to one or another of these banks and PCA's.

2. There are, according to these bank and PCA sources, a number of things you can do; a number of things they can help you do to lighten your load.

Examination of Details

Let's examine in detail the two main questions: First, in a nutshell: What are the chances of someone's financing your receivables?

We have all heard that this is an accepted method of business finance, used extensively in manufacturing and wholesaling lines. Finance companies started financing receivables in the period following World War I. They grew slowly until the period just prior to World War II, but took a sharp upturn in the war period and have been growing rapidly ever since, to the point where they now finance an annual volume of some $5-7 billion of receivables. This business is concentrated largely in non-agricultural manufacturing and wholesaling lines and, to the best of my knowledge, they are not active in the receivables financing of agricultural firms. It is possible, however, that they might be worth investigating as a possibility.

Some commercial banks also do receivables financing, but the bulk of this business is done by specialized financial institutions. In their operations an agreement is executed with the manufacturer or dealer to either: (1) Purchase his customer's open accounts receivable as they arise, or (2) advance him loans secured by the pledge of the receivables, with recourse to the manufacturer or dealer for credit losses. A maximum total amount is established on the basis of the firm's financial position and the quality of its receivables.

The firm does its own examination, passes on its customers' credit and handles its own collections. As sales are made, copies of the invoice are sent to the financing institution which returns its check to the firm. As payments are received by the firm, the checks are endorsed and forwarded to the financing institution to "complete the transaction." The customer is usually not even aware that any financial institution is involved.

Here is a nice, neat financing method—at least on the surface. To what extent is it available to you through arrangements with your local banks and PCA's? Let me refer to the survey mentioned earlier.

ACCOUNTS CAN'T BE TRANSFERRED EN MASSE—First, several of the banks and PCA's are involved in some sort of receivables financing arrangements on a limited basis. So far as these arrangements are concerned, we have to recognize and understand one basic point. In the eyes of the bank or the PCA, this is not a means for transferring your present accounts, en masse, to them. For some of the accounts this shift can be made, but most of those now on your books will have to be worked out on an individual basis.

In this regard, every one questioned made the point that he was not interested in financing only those accounts that had gotten out of hand. Several had suggestions, however, for helping reduce the load. "Bring us a list of your receivables," they said, "and let us review them with you. Some we will be able to take over in the course of our normal credit operations.

"Some of the farmers on your books will also be our customers. Since we like our borrowers to have clean financial statements, we will at least discourage them from running up additional accounts."

Returning to the No. 1 question, that of financing your receivables with banks or PCA's, it must be pointed out that attitudes of the finance men varied widely. Some seemed to have had favorable experiences with such programs and were receptive to the idea of going farther with them. Others were noticeably cooler and some "wouldn't touch the thing with a 20-ft. pole."

DEALER MUST MEET CERTAIN CONDITIONS—On the basis of their comments, it appears as though you stand a fighting chance of working out a program for financing at least a part of your new accounts (your future receivables) with your banker or PCA if you can meet certain conditions and are willing to take on the responsibility for certain credit practices. The conditions you will have to meet are essentially these:

1. Since whoever finances you is going to require security over and above the receivable itself, your firm is going to be endorsing the liabilities of your customers in the majority of cases. Here the net worth and general financial condition of your firm becomes all-important. Your endorsement won't mean much if there is nothing behind it.

2. Additional security, in the form of a promissory note signed by the customer, will be required. This, according to every one of the men I questioned, is a key move at the outset of the account. They say that before you approve the account, the situation should be explained to the customer—he should know that the note may be discounted—and his note signed. Whether the note is discounted or not, this is a sound credit practice.

3. Obviously, the customer's note is only as good as his repayment capacity and his financial position. If the program is to work—if it is not to be loaded down with problem accounts—some investigation of these factors is essential. You are inevitably going to refuse some accounts if you follow this practice, and you may lose some business. I am convinced, however, that you will lose less than you anticipate, and that you will be better off by virtue of having lost some of it.

CREDIT BUSINESS DEMANDS SOUND CREDIT PRACTICES—Some dealers will say that these steps are impractical.

My only answer is that we don't get something for nothing; we can't eat our cake and have it too. If you are going to get in or stay in the credit business, we are going to have to do credit examination and comply with the fundamentals of sound credit practice.

Given these conditions:

1. Sound financial condition of your firm,

2. Performing basic credit examination prior to approval,

3. Use of the promissory note,

what are the chief features of your receivables—financing program (if it is set up along the lines of those now in operation)?

1. A maximum amount that can be financed will be established for your financial position.

2. Periodic financial statements will be required.

3. A maximum will be set for the size of the individual accounts.

4. You will have the responsibility for credit examination. Your PCA or bank will establish the minimum standards for what constitutes an adequate examination. Certainly some kind of financial statement will be included, plus means of repayment. The hogs or wheat crop you think will be available may very well already be obligated to someone else.

5. A promissory note, as we have already said, will be required from your customer. You will have the basic responsibility for collection of the account. Your bank or PCA may send out first notices, but slow pay is still your responsibility.

6. In nearly all cases you will endorse the note or assign it, with recourse, to your financing agency. In a few cases, those of top-notch risks, the notes may be assigned without recourse.

By the way of summary, it is obvious that the receivables—financing programs as set up with banks and PCA's—do not give dealers a means of getting rid of slow pays, deadbeats and generally undesirable accounts. Neither do they offer any particular opportunity to the firm that is hanging on by a well-worn shoestring. They do, however, provide a means whereby a basically sound firm doing business with reasonably sound and well-informed farmers can take some of the pressure off its operating capital.

WILL RECEIVABLES-FINANCING PROGRAMS EXPAND?—What can we expect in the way of expansion of receivables-financing programs as we look ahead?

Whether we are talking about commercial banks or about production credit, the programs are limited now and in all probability will continue to be limited to the accounts of comparatively few dealers and to only a part of the receivables on the individual dealer's accounts. Almost without exception, the finance men surveyed indicated that there were enough problems involved in their receivables financing programs that they would be reluctant to move much farther into this type of financing. Without exception, they told me that they would prefer to finance your customers directly if given the oppportunity.

Many reasons were given by the banker and production credit correspondents for this position. Here are some of their thoughts and comments without any particular attempt to

NUTRENA OPEN HOUSE—An estimated 3,000 Texans inspected Nutrena Feeds' plant in Giddings, Texas, recently when the newly-expanded mill opened during the city-proclaimed "Nutrena Day." Visitors were shown newly-installed 500-ton capacity bulk ingredient tanks, truck dock and pellet mill and other manufacturing, warehousing and storage equipment. Other featured events included a drawing, grand opening of Kleschnick Feed & Supply Co., newly named Nutrena dealer, and a talk by Ralph V. Grier, Nutrena general sales manager, Minneapolis. In the picture, most visitors congregate between the Nutrena plant (at rear) and Kleschnick Feed & Supply Co. (left) for the drawing.

present them in order of their importance.

One basic idea can perhaps best be expressed with a couple of quotations. One banker said:

" . . . Existing credit agencies could, if they have the opportunity, lend most of the money that farmers need for operating capital. This is true only when and if the credit agency has all the facts concerning the operations of the farmer."

Another banker who had many years of successful experience as owner and operator of a farm supply business before entering the banking field, commented that the dealer has a full-time job without getting involved in the credit business. He said:

"Dealers should refer their accounts to the bankers they trust and stay out of the financing business unless they have the money to carry the load. Let the bankers handle finance and let the dealers sell and service, buy and sell."

Other Comments

Comments along similar lines—that both the credit business and the elevator, feed or farm supply business are full-time jobs, and that the greatest benefit results from specializing in one or the other—were received from a number of other bankers and production credit men.

Another basic comment made by a number of the finance men was that dealers do the same thing they would do if they were in the dealers' shoes—keep the good accounts which pose no particular payment problem and attempt to get rid of the bad ones.

Other men commented that a receivables financing program is no good for anyone concerned unless a satisfactory repayment program is worked out by the customer. One said:

"We do discount some dealers' notes that are taken after a time on accounts that are slow. In the end, however, we usually have to call in the farmers, get the information that should have been obtained in the first place, and then work out a practical repayment plan. With or without recourse, a loan or account is no good unless there is a practical repayment plan pre-arranged."

These men make the further point that if satisfactory plans can be worked out, then the customer is certainly eligible for credit from established sources, so why not get it directly from that source?

CREDIT AGENCIES CAN PROVIDE ADDITIONAL SERVICES—Thus far the question of the credit institution's role in financing the dealer's receivables has been discussed. Let's examine briefly the question of what additional services your credit agency can give you, drawing heavily on suggestions from bankers and PCA men for the answers.

Already mentioned is the practice of periodically reviewing accounts with your credit agency, and the relief this can give you. Along this line the idea of getting acquainted with your banker, of keeping him up-to-date on your financial condition and your prospective operating capital needs, and of using pre-planned and pre-arranged credit instead of emergency (I need it yesterday) credit certainly has merit.

Credit agencies can help indirectly in a way which this quotation from a banker's letter illustrates:

"Really, the dealer would do well to advise the purchaser to work out well in advance, with the one from whom he is in the habit of borrowing, a program for meeting his credit needs. Then, if he is not entitled to credit from that source, trouble is just being invited when accounts of that farmer are put on the books."

Comments to the effect that much trouble stems from inadequate information came from all directions. Two quotations are typical:

"In my opinion, many accounts receivable become frozen because too few questions were asked and too little information was secured about when and where the payment was coming from and, whether or not, under reasonable conditions, the farm operation in question would provide the money for payment. In other words, you cannot pay from hogs in five or six months from now unless you are buying hogs or have sows about ready to farrow, to fatten them out."

"In my opinion at least 90% of our credit problems here in our bank are solved when we obtain sufficient information at the time of making the loan. Likewise, I feel that the dealer can, if he expects to carry the account, help his situation material-

WATCH FOR...

THE SHAPE OF THINGS TO COME

IN THE MAY 7 ISSUE OF FEEDSTUFFS

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BULK FEED
TRUCK BODY
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Sizes 10', 12', 14', 16', and 18'.

✓ ALL PURPOSE COMBINATION
✓ NO MANUAL LABOR — COMPLETELY HYDRAULIC
✓ NO NEED FOR 2ND UNIT — THIS ONE HAULS PRACTICALLY EVERYTHING
✓ NO OLD FASHIONED HOIST!

Here is a brand new idea in the handling and transporting of feed. New, because now you can handle bulk feed with ABSOLUTELY NO MANUAL LABOR, SAVING YOU TIME AND MONEY. One man at the hydraulic control panel raises the boom, positions it where he wants it, and unloads up to one ton of feed per minute — all without moving from the control panel which is operated from inside the truck cab. Yes, just one hand on the control panel, and the job is done.

What's more, the Curley Line Ton-A-Minute, Combination Bulk Body eliminates the need for a second unit, again cutting your overhead costs. Not only can the body be divided into three compartments for carrying three different formulas of bulk feeds, but the hinged inside angle sides can be easily raised and locked in place, which converts the bed into a standard truck body for carrying a maximum pay load of sack feed, grain, fertilizer or even farm stock.

At long last, here is the all-purpose combination bulk body that will really do a job for you. To learn the complete story — from the positive turning mechanism to the full length reversible auger to the heavy duty hydraulic system, clip and mail the coupon. Be sure to hear the Curley Line story before buying any feed truck body.

It will be well worth your time!

JUST LOOK AT THESE Curley Line FEATURES

1. Completely hydraulic bulk body delivers the feed where you want it with NO OLD FASHIONED HOIST, NO MANUAL LABOR.
2. Hinged sides convert into sack feed or grain body quickly and easily, eliminates the need for a second truck.
3. Full length, bottom discharge auger is reversible for front or rear discharge.
4. Positive turning mechanism. Boom stops immediately.
5. All welded, steel, heavy duty construction.
6. Hydraulic floor slides in all three compartments operate independently or together.
7. Unloads in minimum clearance areas — body is never raised to unload.
8. Tested on the job for speed, versatility, durability and proved performance.

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Just clip this coupon and mail, together with your name and address, for complete facts about the Curley Line Ton-A-Minute Combination Feed Truck body. Of course, there is no obligation.

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Latest Rulings in Labor Relations

CAN YOU DISCHARGE AN EMPLOYEE WHO REFUSES OVERTIME BECAUSE OF A SECOND JOB ?

OUR FISCAL YEAR ENDS, AND WE'LL ALL HAVE TO STAY LATE FOR A WHILE!
I SIMPLY CAN'T!
I DO WORK FOR DAMON & CO., EVENINGS!
SORRY, PETE. WE'LL HAVE TO LET YOU GO!
I'VE BEEN TOLD OUR WORK WEEK IS 35 HOURS!
WE'VE ASKED THIS DEPARTMENT FOR LIMITED AMOUNT OF OVERTIME!
ARBITRATOR'S DECISION
YES, AN EMPLOYEE IS EXPECTED TO COOPERATE WITH MANAGEMENT TO HANDLE THE WORK LOAD
Based on a 1960 Connecticut Decision

ly by following the same procedure."

The credit people surveyed generally recognized that credit examination is not an easy job; that it can be time-consuming and even offensive to a customer when not done in a skillful way. Most of them said that they would be more than willing to give dealers the benefit of their experience in this job—to work with dealers in a 'raining program designed to teach them the "tricks of the trade."

FMC Changes Names Of Chemical Divisions

NEW YORK—Food Machinery and Chemical Corporation has dropped the name Westvaco from its divisional and brand identifications. The former Westvaco divisions are now known as the Chlor-Alkali and Mineral Products divisions of the corporation.

Chlor-Alkali division is a major producer of caustic soda, chlorine, soda ash and solvents. The Mineral Products division is a fully-integrated manufacturer of phosphates, barium products and magnesias. These chemicals, and all other products of the two divisions, will be known as FMC Chemicals.

"The change was made to point up the fact that the Chlor-Alkali and Mineral Products lines are part of the broad family of FMC chemicals," said Frederick A. Gilbert, FMC vice president and general manager of the inorganic chemicals department.

Other chemical divisions of FMC are Becco Chemical, Niagara Chemical and Chemicals and Plastics, which produce a wide range of peroxygen chemicals, pesticides, insecticides, epoxy resins, plastics and synthetic organics.

AGENCY APPOINTED

NUTLEY, N.J. — Hoffmann-La Roche, Inc., animal nutrition division, has appointed Bennett & Chase & Co., Inc., New York, as its advertising agency. Ira Contant, director of creative services at Hoffmann-La Roche, Inc., Nutley, N.J., will supervise the division's advertising in journals and other media.

Commercial Solvents, Amburgo Hold Seminar

NEW YORK — The sales staff of the Amburgo Co., Philadelphia, recently attended a one-day sales seminar sponsored jointly with the animal nutrition department of Commercial Solvents Corp. The sessions were held in the executive conference rooms of CSC in New York.

The Amburgo delegation was headed by Samuel M. Golden, president. Other Amburgo representatives included Selma Raburn, vice president; Frank D. Varga, Harold Metzner, L. Paul Brubaker, James Colten, Bernard Zeigler, Louis Golden and Marvin Golden. A highlight of the meeting was a Baciferm sales clinic presented by the Amburgo men.

Chairman of the sales seminar was I. Roy Cohen, sales manager of the animal nutrition department of Commercial Solvents. The meeting opened with a welcome by James V. O'Leary, CSC general sales manager. Principal topic of discussion was the CSC line of animal feed products, including Silotracin, an antibiotic method of silage preservation introduced to the trade recently. A full representation of CSC's research market development and advertising departments was in attendance during the sessions.

The seminar closed with an inspirational address by Mr. Golden on the place of salesmanship in modern marketing.

California May Become A 'Surplus' Egg Area

BERKELEY, CAL.—Recent trends in egg production and consumption suggest that California as a whole—and southern California in particular—will soon be a surplus-producing area, according to reports recently published by the California Agricultural Experiment Station.

The reports were based on a study conducted by S. K. Seaver, agricultural economist at the University of Connecticut, during a sabbatical leave at Berkeley.

Egg production in California increased from 2,302 million in 1945 to 4,871 million in 1958. The Los Angeles-San Diego supply area has accounted for most of the upsurge in production, jumping from 722 million in 1944 to 2,864 million in 1958.

In contrast, production in the San Francisco areas rose slowly from 1,294 million to 1,530 million during these years.

The unusually rapid growth of population in Southern California also has resulted in an important shift in egg consumption in the state. The Los Angeles-San Diego area consumed 2,864 million in 1958 against 1,530 million for the San Francisco area.

The study also reports that Californians are expected to eat more than 5 billion eggs this year. This is an average of 337 eggs per person.

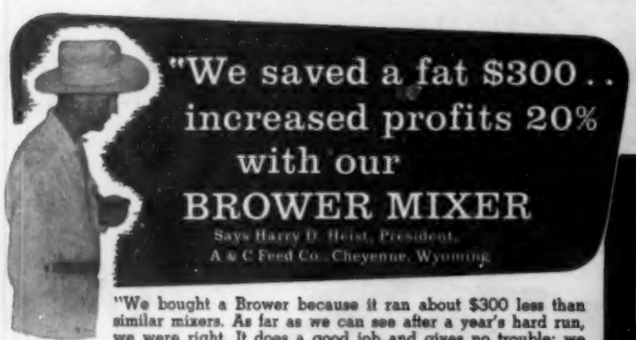
Union Special Machine Names Top Salesman

CHICAGO—The Walter E. LeRoy "Highest Ranking Union Special Machine Co. Salesman for 1959" award has gone to Barney L. Rogers of the firm's Chicago office, according to an announcement from the company.

For winning the sixth annual award, Mr. Rogers will receive a traveling trophy plus a leather bound portfolio containing a brief biographical sketch and Mr. LeRoy's picture. Mr. Rogers will retain these mementos for one year, until the winner of the 1960 award is designated.

Mr. LeRoy, a former manager of Union Special's Atlanta office, established this award six years ago as "a symbol of enterprise and a goal toward which all Union Special salesmen might work."

These are the top 10 salesmen in the Union Special firm for 1959, in order of sales: Mr. Rogers; R. J. Lindhorst of the Dallas office, W. J. Brauch of the Atlanta office, R. L. Smith of the Philadelphia office, C. D. Mairs of the Philadelphia office, F. Loglisci of the New York office, D. M. Bender of the Philadelphia office, J. W. Bradberry of the Atlanta office, S. Singer of the New York office and A. M. Buckley of the Boston office.



"We bought a Brower because it ran about $300 less than similar mixers. As far as we can see after a year's hard run, we were right. It does a good job and gives no trouble; we saved a fat $300. We've increased our feed profits about 20% and are serving about 10 to 15% more customers."

BROWER Whirlwind MIXER

Dependability, fast mixing action, and low cost operation make Brower the WORLD'S LARGEST SELLING MIXER! Brower action WHIRLS the ingredients instead of just stirring or tumbling them . . . produces the most thorough mix obtainable. Every sack has the same even mixture.

FAST and ECONOMICAL — a perfect blend in about 10 minutes at a power cost of only 3¢ to 5¢ a ton. Five sizes — 700, 1200, 2000, 3000 and 4000 pounds-per-batch mixing capacities. Above-floor and below-floor models. Heavy welded steel construction — built for years of trouble-free service.

Easy to get into through large hinged service door and hinged conveyor sleeve.

Note mixing paddle at top which WHIRLS the ingredients for the most thorough mix.

Glass observation window at eye level provides easy inspection of feed being mixed.

BROWER MFG. CO.
402 N. 3rd, Quincy, Ill.

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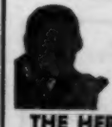

Where only trace minerals are to be added, Herman Nagel's Trace Mineral Concentrate supplies all eight, in correct balance.

THE HERMAN NAGEL CO.
53 W. Jackson Blvd., Chicago 4, Ill.

End of Decline in Milk Cow Numbers Is Definite Possibility, USDA Reports

WASHINGTON — Has the decline in milk cow numbers ended? That's a good question. An answer without extensive qualification isn't easy to come by. But it appears at the moment, according to Herbert Kriesel, U.S. Department of Agriculture economist, there is a good possibility that the number of milk cows will become larger within the near future.

U.S. milk cow numbers have declined in every year except two since 1944. But, Mr. Kriesel notes, during 1959 the number of milk cows on U.S. farms declined only .7% from the year before. This decline was the lowest for any calendar year since the number increased in 1953.

An increase in the number of young stock in the past year does not necessarily guarantee an increase in milk cow numbers, but, says Mr. Kriesel, "the fact remains that the number of young stock is at a record high level compared with mature cows." Another factor which he mentioned as indicating a possible halt in declining milk cow numbers is that the rate of culling among dairy herds during 1959 was the lowest since 1953, when the number of milk cows increased.

Distribution Changes

The distribution of cows among regions has changed substantially in the past 15 years. All regions have shown declines during that period. However, the .7% decline for 1959 is an average. Some states and regions showed increases in milk cow numbers. Among the regions, numbers as a per cent of a year earlier were: North Atlantic, 100; north and south central, 98; south Atlantic, 101, and western states, 102.

In the past 15 years cow numbers in the west north central and south central states have dropped approximately 33%. On the other hand, in the north Atlantic states numbers showed a decline of less than 6% from Jan. 1, 1945, to Jan. 1, 1960.

The reduction in the west north central and south central states accounted for two thirds of the total decline in the U.S. as a whole during the 15-year period. The east north central states accounted for less than one fourth of the decline. The remaining three regions accounted for less than 5% each.

Mr. Kriesel notes that this regional redistribution of milk cows reflects two major developments: First, the decline in demand for butter, which in turn reduced the demand for milk in many states in the Great Plains and western Corn Belt, and second, increased demands for fluid milk near the populous areas of the country.

More Replacement Stocks

Mr. Kriesel believes the actual increase in the number of replacement dairy animals during 1959 may be of greater significance than the letup in the decline in the number of milk cows.

He reports that the number of heifers 1-2 years of age kept for milk cows had declined each year, 1954 through 1959. But on Jan. 1, 1960, this number increased 3% over a year earlier. The number of heifer calves under one year of age turned upward as of Jan. 1, 1959, and showed a 4% gain during 1959. In relation to the number of mature cows on hand, the number of young stock on Jan. 1, 1960, was at a record high level.

All regions of the country showed an increase in the number of young dairy stock. Increases in the number of heifers 1-2 years of age ranged up to 6% in the south Atlantic and western states. Heifer calf increases ranged from 2% in the east and north central states to 6% in the western and north Atlantic states. In all regions, except the east north central and south Atlantic states, the increase over a year earlier for the animals under one year of age was equal to or greater than the increase for the animals 1-2 years old.

Mr. Kriesel reports that the gradual decrease in milk cow numbers within the past several years reflects the decline in the number of dairy farms, only partly offset by the increase in cows kept per farm.

In years gone by, farmers often shifted from milk production to beef production, or vice versa, depending on economic conditions. Such switches are not so easy now. Because of the expensive facilities now needed on dairy farms there is relatively little shifting from beef to milk.

"The rate of decline in numbers of dairy cows depends mainly on the rate at which dairy farms shift to

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New MONEY MAKER at Grainton, Nebr.

Grainton Elevator Company's new 275,000 bu. house for wheat and milo storage was erected in summer 1959 by Columbian recommended contractor, Jones Construction Co. of Grant, Nebr.

BOLTED STEEL TANKS
MASTER-CRAFTED BY COLUMBIAN

This drive-through fast unloading elevator is another of the many "New Look" structures which dot the grain lands of the nation. Columbian engineers used the "look ahead" concept in developing economical and efficient planning for modern grain storage. Columbian-recommended contractors erect Columbian Bolted Steel Elevators quickly, have the experience to fit Columbian designs to your location.

Only by streamlined, fast, modern methods can the country elevator remain competitive and be profitable in the ever growing business of grain storage. Big storage, with adequate receiving tanks for conditioning, blending and mixing, features this new Grainton elevator. It has one big tank (55' x 72'), four main elevator tanks, four receiving tanks over driveway, and headhouse, all of fire safe, vermin proof steel. The driveway is hopper bottom for fast unloading into pit. The leg has 5,000 bu. per hour capacity. Future expansion if needed will be quick, economical and perfectly matching, because the elevator is planned that way by Columbian.

Whatever your grain storage or handling problem—from a single tank to a complete new elevator or a modernization job—let Columbian experience help you. Write us, in confidence, of your needs. And send right away for the new, illustrated "Columbian Steel Elevator" book. It's free—and full of helpful ideas.

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STEEL, Master-Crafted by Columbian . . . First for Lasting Strength

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250 eggs 4.5 Lbs. FEED CONVERSION 90% LAYER LIVABILITY 90% WEIGHT AT SALE

HESS & CLARK nf-180 Nitrofurazone Tablets Ashland, Ohio

other enterprises," Mr. Kriesel notes.

Production of milk became more attractive in relation to hogs and beef over the past 12-18 months when hog prices dipped to their lowest levels in some time and when beef cattle prices declined considerably. This situation, plus comparatively stable prices for milk cows and other factors, renewed confidence among dairymen.

Because of the slowdown in the rate of decline in milk cow numbers and the possibility of some increase in numbers, Mr. Kriesel observes that milk production is likely to turn upward in the next year or so. "It is quite possible that the increase in production will be more rapid than the increase in commercial demands for milk products," he says.

Cash receipts from dairying may reach a new high this year. Prices to farmers for milk will be supported at the same level in 1960-61 as in the previous year. However, production expenses may be up.

LA BUDDE
MILWAUKEE, WIS.

MALT SPROUTS
BREWERS GRAINS
DISTILLERS GRAINS
BEET PULP
AND 44 OTHER FEEDS

POULTRY LAB OPEN HOUSE—A new piece of laboratory apparatus is examined at the open house for the poultry industry held by Delaware Poultry Laboratories at Millsboro in order to unveil its expanded diagnostic laboratories and facilities. Looking at the equipment are (left to right): Dr. H. N. Lasher, director of laboratories, Delaware Poultry Laboratories; Dr. J. K. Drum, associate technical director of Sterwin Chemicals, Inc., of which DPL is an affiliate, and Dr. Paul Lindenmaier, DPL veterinary pathologist. More than 150 guests from the Delmarva area attended the function and were conducted on a tour of the new facilities.

Thyroprotein Boosts Early Baby Pig Gains In Iowa Experiments

AMES, IOWA—Thyroprotein (iodinated casein) added to a high-energy ration stimulates milk flow and results in more rapid gains in nursing pigs, and in a smaller death loss per litter, tests at Iowa State University indicate. Results of the work were reported in Iowa Farm Science, a university publication.

Researchers fed 100 mg. of thyroprotein per pound of feed. A full feed of high-energy ration is necessary at this time, and thyroprotein must be fed continuously during the lactating period, according to the test report. Removal of the thyroprotein results in an immediate drop in milk production.

On excellent rations without thyroprotein, 118 sows in the Iowa experiments brought their pigs up from an average birth weight of 2.9 lb. to an average weight of 5.1 lb. for an average gain of 2.2 lb. per pig in the first week.

A similar group of sows with pigs averaging 2.9 lb. at birth were fed a thyroprotein supplement in their ration. This group brought their pigs up to a 5.5-lb. average at one week —an average gain of 2.6 lb. This was an 18% greater gain for the pigs whose mothers were receiving thyroprotein.

The thyroprotein supplementation cut death loss almost in half during the first week. Sows receiving only the good base ration lost an average of only .5 pig per litter.

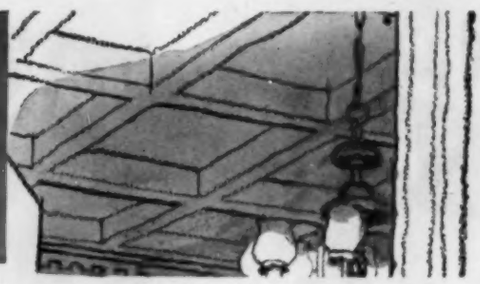
Iowa State scientists who conducted the work included Dr. Damon V. Catron, Dr. Vaughn C. Speer, Prof. Virgil W. Hays, Dr. James D. Jones, Prof. C. C. Culbertson and L. E. Johnson.

Merck Fills Position

RAHWAY, N.J.—John F. Clausen has been named animal health sales representative in Oklahoma and the Texas Panhandle for Merck chemical division.

Mr. Clausen, a native of Temple, Okla., will report to Charles E. Wall, region sales manager for Merck & Co., Inc., at St. Louis.

"We were taking the plan for granted"



"You know, Ed, it's so easy to take these things for granted. I knew we'd put in the Payroll Savings Plan a long time ago. So I just assumed we had a good, sizable number of our employees who were buying U.S. Savings Bonds regularly.

"Well, last week our chairman asked me for the exact figures. When I checked up I found we had less than a third of our people making regular use of the Plan. We needed to have someone explain—in person—the convenience and soundness of this fine thrift program.

"I contacted our State Savings Bonds Director right away. With his quick, friendly help we set up a thorough canvass of everybody on the staff. We found that many of our company family were just waiting to have someone tell them how simple it is to share in this sound, systematic thrift plan. Then the polite suggestion, 'And why not start now?' really did the work. Today we have a participation we're proud of, and we're taking steps to increase it still more, every payday."

Experience of leading companies shows that spreading Payroll Savings information through the organization, person-to-person, results in quick increases in participation. And that brings such welcome benefits as lower employee turnover, better safety records and the keen satisfaction of helping your people to contribute to our Nations Peace Power.

ALL U.S. SAVINGS BONDS—OLD OR NEW—EARN ½% MORE THAN BEFORE

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All T-H MIXES contain only the additives that sensibly belong in a premix. And when used in conjunction with a suggested T-H feeding program, T-H MIX assures you of customized feed formulation, without guesswork, without waste! You just select the one combination of ingredients in the T-H feeding program that fits your needs, and your work is done! Let Thompson-Hayward customize your feeds, write for more information today.

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To better satisfy the needs of our customers, the Thompson-Hayward Feed Chemical Division maintains a skilled and highly-qualified staff of feed nutritionists. Constantly in touch with the numerous research programs being conducted by colleges and universities across the nation, this nutritional staff stands ready to supply any necessary information or consultation concerning state feed laws, disease control, specialized feed formulation. It is the sole purpose of this staff to help you manufacture better feeds through more effective use of feed additives. You are invited to take advantage of this service.

T-H

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For complete information about the T-H Premix and Feed Program for Poultry, Swine and Turkey, write for this free booklet today. Mail this coupon to Thompson-Hayward Chemical Co., 2915 Southwest Blvd., Kansas City 8, Mo.

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KING SIZE No. 2550 for large ranging flocks **$5.95**

REG. GIANT No. 2500 for average flocks **$4.95**

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UP OR DOWN

By Dr. Leonard W. Schruben, Agricultural Economist, Kansas State College

Hog Numbers And Intentions

The number of hogs in the U.S. Jan. 1 was the largest for that date since 1952, according to U.S. Department of Agriculture reports. But sows and gilts were down 11%. As of March 1, farmers in Corn Belt states intended to farrow 5,297,000 sows this spring, which would be 13% below the 1959 spring farrowings. This confirms intentions to cut hog numbers by 12% reported by USDA last winter.

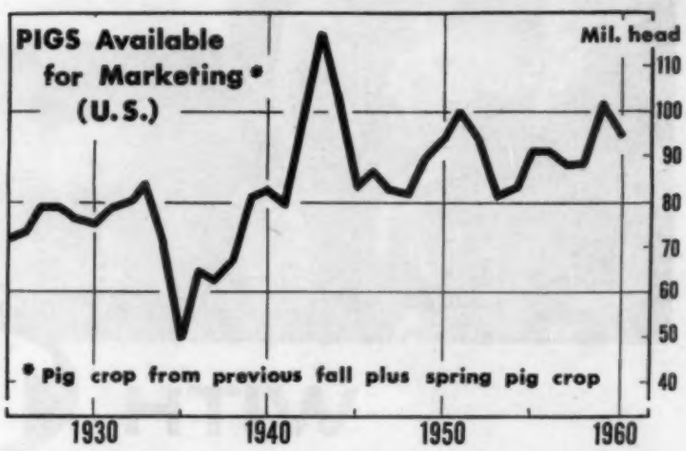
The number of hogs available for marketing in 1960 will total about 95 million head if farmers' intentions are realized. This figure is the 43 million head farrowed in the fall of 1959 plus the 1960 spring crop. How this compares with earlier years is shown in the accompanying exhibit.

What do these figures mean in terms of the market for manufactured feed this year? What will hog prices do?

These are speculative questions at best. But let us speculate a bit on the answer to each of them. Generally speaking, hog feeders feel like buying more feed when hog prices are higher. They are in a better position to pay their feed bill unless costs go up more than prices.

It is in such a situation that you can help improve the profit possibilities of your customers as well as yourself. The key is to offer economical feeds along with sound advice on how to use them. You can't expect to make a profit in the feed business if your customers are going broke.

What about hog prices this year? The turnabout in the hog cycle got underway last fall. This was earlier than expected which means slaughter will be below that of last year for the last three quarters of the year. Hog prices respond to changes in supply fairly rapidly in most cycles. So, during the last half of 1960 you can expect hog prices to hold above those of a year earlier by a couple dollars per hundred. It looks as though we have escaped $10 hogs this cycle. There isn't much net return for anyone from $10 hogs.



PRODUCTS

(Continued from page 44)

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*Reprints of the articles marked with an asterisk are available and can be obtained, free of charge, from the Northern Utilization Research and Development Division, Agricultural Research Service, 1815 North University Street, Peoria, Ill.

Minimum Wage For Farm Laborers Called 'Desirable'

WASHINGTON—"A report to be released by the Department of Labor at the end of April will show that a minimum wage for hired farm workers is both feasible and desirable," said James P. Mitchell, secretary of labor, in a recent address to the National Travelers Aid Assn.

"It will also show," said Mr. Mitchell, "that such a minimum would apply to a relatively small percentage of farm employers, all of them large, who hire a substantial portion of the hired farm help in the U.S., and would not apply to the small family farmer.

"I am releasing this report," said Mr. Mitchell, "so that ample discussion and thought can be given to it, in sufficient time and detail, to insure a meaningful consideration in the next Congress."

POULTRY FIRM FORMED

BROOMFIELD, COLO. — Molholm Enterprises, Inc., has filed articles of incorporation to engage in propagating, raising and dealing in poultry of all kinds, listing as incorporators Edith L. Dunphy, Arthur J. Dunphy and Martin C. Molholm. Directors include Edith Dunphy, Dukie A. Null, Chester L. and Vern I. Molholm and Virginia H. Owen.

A sweet old lady, always eager to help the needy, spied a sad looking man standing on a corner. She walked over and pressed a dollar into his hand, saying, "Chin up."

The next day, on the same corner, the sad old man shuffled up to the lady and slipped $10 into her hand. "Nice picking," he said in a whisper. "He paid nine to one."

◆ ◆ ◆

We are sure that a church did not intend these two signs around the corner from each other to be read consecutively. One said, "Make your worst enemy your best friend." The second one helpfully suggested, "Drink is man's worst enemy."

◆ ◆ ◆

Father looked up from his racing news and noticed the baby in the buggy. Turning to his wife he said, "Baby's nose is running again."

His wife snorted and snapped, "Don't you ever think of anything except horse racing?"

◆ ◆ ◆

A bored cat and an interested cat were watching a game of tennis. "You seem interested in tennis," said one cat.

"It's not that," said the other, "but my old man's in the racket."

◆ ◆ ◆

"I'm Mr. Smith's wife," said the brunette, introducing herself to a lovely blond at a party.

"I'm his secretary," the blond replied.

"Oh," the brunette said, arching her eyebrows, "were you?"

◆ ◆ ◆

The warden was walking through a cell-block and noticed that two of his prisoners, both of whom were due to be released shortly, were deeply engrossed. One was poring over the market reports in The Wall Street Journal. Now and then he would bark some figures to the other, who would jot them down quickly.

This went on for a few minutes, and then the writer said to the reader: "Joe, if I figure these statistics right, we could make just about $74.37 each per night after we get out of here stealing hogs in Iowa."

◆ ◆ ◆

I am the captain of my soul;
I rule it with stern joy;
And yet I think I had more fun
When I was cabin boy.

Leon Lambert Joins Ehrsam & Sons Mfg.

ENTERPRISE, KANSAS—Leon Lambert has joined the J. B. Ehrsam & Sons Mfg. Co. of Enterprise as the Colorado district manager.

Mr. Lambert will be responsible for sales of the full line of Ehrsam materials handling products. He has over 13 years experience in heavy industrial sales and engineering of materials handling systems and equipment.

MILL PROPERTY SOLD

BERESFORD, S.D.—Ray Howard, owner and operator of the R&H Feed Mill in Beresford the past 17 years, has announced the sale of his mill property to Len Price of Beresford. The new owner plans to relocate his present feed business on Main Street at Highways 46 and 77 at the east edge of Beresford.

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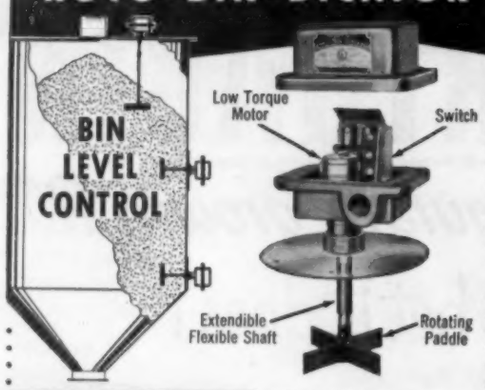

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REDWOOD BUILDING—This is the redwood building in which the High Kwality Egg Farm production unit is housed. Of prefab construction, it is built on a concrete block foundation. At the rear end are the cleaning room and the cold storage unit.

Ohio Egg Producer Relies on Automation

By Special Correspondent

OXFORD, OHIO—Making use of some of the latest developments in poultry raising, the High Kwality Farm of Oscar Hucke is said to be one of the most nearly completely automatic units to be introduced in Ohio.

Mr. Hucke is employed by Koehl Feed & Supply Co., Oxford. His farm is located southwest of Oxford. The unit is housed in a redwood prefab building. Set on a concrete foundation, the building is 192 ft. long and 36 ft. wide. It has a screen divider running lengthwise. On either side are facilities for accommodating a maximum of 3,000 birds.

From the divider toward each wall is a section 20 ft. wide which is floored with lath and wire mesh and, as one approaches the wall, there is a 16-ft. scratch area on each side. A pit is located beneath the 20-ft. wire-floored section, allowing droppings to fall through to an area serviced by separate steel blades which are pulled, by motored winches, to a manure-loading ramp at the south end of the building.

Along the wall are located metal units which provide 1,218 nests. These are lined with a soy bran flake cushioning. Above, the nesting steel racks run the length of the building, providing an overhead support for baskets which are pushed along as the eggs are gathered three times daily.

Water troughs are suspended down the center of each unit and, on either side, feed troughs run the length of the building, automatically chain fed from the bulk feed bin. The feeder lines are set in motion by the action of a time clock, and the water supply is automatically controlled by a float valve.

Shell and grit feeders are suspended at intervals along the scratch area, and a complete Master Mix feeding program is being followed, Mr. Hucke said.

Five ventilating fans service the egg production unit and are operated by time and temperature control mechanisms. The fans can be set to completely change the air in two minutes of every 10, in four minutes of every 10 or to run constantly, depending on outside temperature and similar considerations. All of the poultry equipment is Big Dutchman brand.

Watches Total Production

Explaining that the High Kwality system does not allow for an individual production chart on each hen, Mr. Hucke said that instead he watches total production and plans for over-all replacement.

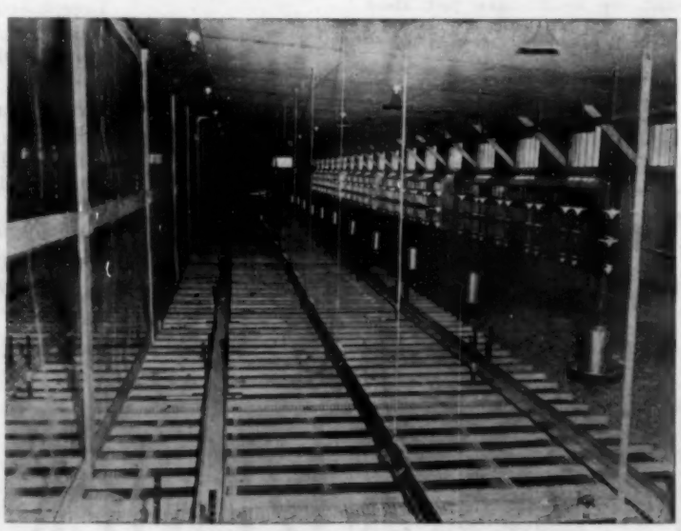
"Since the hens are allowed to move about, there will only be few instances of individual culling," he pointed out. Instead, when the production capacity begins to slacken, a time estimated at 12-15 months, all the hens on one side of the divider will be sold and replaced by 3,000 new Hy-Line hybrid chickens. Later, those on the other side will be sold and replaced.

After the eggs are gathered, they are immediately taken into the washing room at the north end of the building, cleaned, processed and put into the large walk-in storage refrigerator. From there, they are sold through a wholesaler, who ships them to out-of-town markets.

A resident caretaker assists with the poultry operation.

IDAHO ELEVATOR SOLD

GRANGEVILLE, IDAHO — The Wren elevator located at Fenn, Idaho, has been sold to the Union Warehouse and Supply Co. The elevator will be used for storage purposes. Capacity of the elevator is 125,000 bu. Another 90,000 bu. of storage space is available in two flat buildings.



EGG PRODUCTION UNIT—This is one-half of the egg production unit now in operation at the High Kwality Farm. An identical unit is located beyond the wire partition at the left. The dark center trough, which is suspended just right of the center, supplies water. The two tracks to either side provide a moving belt of feed. The hanging feeders at the right supply shell and grit. Along the far right wall, beneath the windows, the nesting units can be seen. This picture was taken before the unit went into production last fall.

Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

Studies on Experimental Concurrent Infections of Dairy Calves with Coccidia and Nematodes. III. Eimera spp. and the Threadworm, Strongyloides Papillosus. IV. Eimera spp. and the Small Hairworm, Trichostrongylus Colubriformis.

● L. R. Davis, H. Herlich and G. W. Bowman, USDA, Auburn, Ala., Regional Disease Research Laboratory; American Journal of Veterinary Research, Vol. XXI, No. 81, March, 1960, pp. 181-194.

ABSTRACTS AND COMMENTS

A total of four experiments were conducted to continue investigations at the regional research laboratory at Auburn, Ala., on the effects of concurrent parasitic infections in dairy calves. Previous experiments had shown that calves with both coccidiosis and small intestinal worms (Cooperia punctata) suffered more than those with single infections of either of these parasites. On the other hand, when coccidiosis and medium stomach worm infections were harbored in the same animal, the development of either parasite and the damage done by it were not apparently enhanced by the presence of the other.

Two of the experiments investigated currently compared the results of concurrent infections of coccidia and threadworm infections when both attacked the same regions of the intestine of the young calf still on a milk diet. Three calves in each group were given coccidia, worms, or one half the numbers of coccidia and worms while three additional ones were left as untreated controls. All calves were kept on a milk diet until experimental day 25 of the first test, when they were fed a commercial milk substitute which was continued until the end of the second test. On the 49th day, the surviving calves were again inoculated or left as controls, as before (test 2).

It was shown that the calves were much more susceptible to coccidia in test 1 than test 2 when they were older and had been exposed to contamination long enough to produce some resistance. It was also shown that the presence of the threadworm in the same regions of the small intestine may have enhanced the development of the coccidia in test 1.

Much the same general results were secured in the second series of two trials conducted with coccidia and the small hairworm under similar conditions. It is apparent that the presence of nematodes affecting the same general region of the intestine may have a synergistic effect on the development of coccidia.

Coccidiosis is still a very troubling and relatively hard to treat condition in cattle of all ages. It now becomes apparent that we should not only give consideration to treating specifically for coccidiosis but also for other parasites which may be present. This means that comprehensive and thorough fecal examinations should be made when coccidiosis occurs, and then treatment keyed to the particular parasite(s) present. Too often routine treatment with sulfas, etc., has failed to give good results in the past.

Timely and Worth Noting

Although the genus Nematodirus species of intestinal parasites have not generally been considered to be very important in cattle practice, there have been reports of experimental infection of cattle with them as well as natural occurring fatalities in calves (Wyoming). In Ireland this class of parasites has been reported as causing severe and even fatal infections. This class of parasites includes "Thread-necked worms" as well as several smaller worms.

Dr. Rubin of Colorado State University has investigated the efficacy of bephenium embonate (Franten-Burroughs Welcome Co.) in treating not only Nematodirus infection but trichostrongyles as well. The preliminary results have indicated a good degree of control, either by actual removal or by sterilization of parasites. Further work is necessary to evaluate this compound. No clinical signs of toxicity or other side effects were noted.

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TALKING SHOP—Taking time out from sessions of the Archer-Daniels-Midland Co. feed dealer training institute at Minneapolis recently are (left to right): Harry Haberkorn, Sharon (Wis.) Farm Supply; Clyde Meinhoefer, manager of the ADM feed division; Dan Shortley, Shortley Elevator, State Center, Iowa; Rollin Yoder, Heston (Kansas) Mill & Elevator; Alton Hanson, McCook Country Feed Co., Salem, S.D., and Ray Piehl, northwestern regional sales manager for Archer Booster Feeds.

ADM Holds Training Course for Dealers

MINNEAPOLIS—A range of subjects from credit and merchandising to antibiotics and mineral supplements for livestock and poultry feeds was covered during a recent two-day training institute conducted by Archer-Daniels-Midland Co., Minneapolis. Some 150 Archer Booster Feed dealers from six states attended the sessions.

"The institute is designed to bring to feed dealers the latest developments in store operation and management, as well as in the technical aspects of animal nutrition," said Clyde C. Meinhoefer, ADM assistant vice president and manager of the Archer feed division.

Speakers at the sessions, which were attended by dealers from Minnesota, Wisconsin, South Dakota, Iowa, Nebraska and Kansas, included Alvin W. Donahoo, educational director and secretary of the Minneapolis Grain Exchange; Carroll Plager, manager of livestock extension service, Geo. A. Hormel & Co.; Emmet J. Hoffman, editor of Farm Store Merchandising magazine and Dr. Sterling Brackett, director of animal products development for American Cyanamid Co.

ADM executives taking part in the institute in addition to Mr. Meinhoefer were E. A. Olson, executive vice president, agricultural group; Ray Piehl, northwestern regional sales manager for Archer feeds; Wilfred Witz, supervisor of nutritional research; Clarence Hemming, coordinator of applied research and sales service, and Harold Lee, advertising manager for Archer feeds.

Early Canadian Feed Meeting Plans Related

JASPER, ALBERTA—Preliminary plans for the 1960 Canadian Feed Manufacturers Assn. convention to be held here June 16-18 have been reported by R. Hill, chairman of the convention committee.

One of the highlights of the convention will be a nutrition panel which will take up an entire morning. Moderating the panel will be Dr. W. D. Morrison, Master Feeds division, Toronto Elevators, Ltd., Toronto. Others on the panel include Prof. J. Biely, Dr. L. E. McElroy, W. K. Meyer and Dr. A. Macdonald. C. R. Phillips will give a talk on matters pertaining to his department.

From the U.S., Laton M. Henderson, vice president, Doughboy Industries, Inc., New Richmond, Wis., will speak on various aspects of ingredient purchasing and feed quality control.

Other program speakers and details will be announced later.

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Ruminant Concept Explained in Book

NEW YORK — Among the new chapters in the recently published fifth edition of "Beef Cattle" by the late Dr. Roscoe R. Snapp and Dr. A. L. Neumann, professor of animal science, University of Illinois, is one which discusses the principles of feeding beef cattle and explains the concept that "in order to feed ruminants adequately and economically we must recognize and understand the symbiotic relations existing between the host ruminant animal and microflora of the paunch."

The fifth edition—for cattlemen and students—is an up-to-date revision of the book originally written by Dr. Snapp in 1925. Dr. Neumann has made revisions and additions to bring recommendations into line with new findings.

Although hormones, antibiotics, pelleting and soilage were mentioned in previous editions, portions of the book devoted to these subjects have been enlarged considerably because, as Dr. Neumann notes, "new ration additives and new methods of feeding have become generally adopted."

Dr. Neumann writes in the preface to the fifth edition of "Beef Cattle" (John Wiley & Sons, Inc., New York, $8.50): "Perhaps the greatest departure from previous editions is the method of expressing the nutrient requirements for the various classes of cattle.

"Most instructors of 'Feeds and Feeding' courses use either Morrison's Feeding Standards or the National Research Council Recommendations, or both. I felt, therefore, that this textbook would be more consistent and less confusing if the discussion of the various beef cattle feeding programs and their respective ration recommendations incorporated both these guides.

"Tables giving the nutritive composition of most of the common feeds fed to beef cattle are included in the appendix in order to facilitate the balancing of rations by either of the two common methods described.

"Other appendix tables supply information on the carotene content of feeds in relation to their appearance and method of preservation, and on the calcium and phosphorus content of the common sources of these two mineral elements."

The latest edition of "Beef Cattle" has five major content divisions: General aspects of the beef cattle industry, the commercial cow and calf program, stockers and finishing programs, specialized beef cattle programs and special problems in beef production.

NEW HONEGGER DEALERS

FAIRBURY, ILL. — The following dealers have announced they will handle the complete line of products manufactured by Honeggers' & Co., Inc., including livestock and poultry feeds, Honegger layers and farm buildings and farm equipment: Martin Feed Service, Oregon, Ill.; Rumbold Farm Service, Hennepin, Ill.; Martin Feed Service, Oxford, Ind.; Paulsen's Hatchery, Guthrie Center, Iowa; Leupp Turkey Farm & Feed, Pittsford, Mich.; Blue Ribbon Hatchery, Celina, Ohio; Paulding (Ohio) Grain & Seed, Inc.; Berry's Mobile Milling Service, Collinwood, Tenn.; Womack's Milling Service, Manchester, Tenn., and Nankey & Tomas, Highland, Wis.

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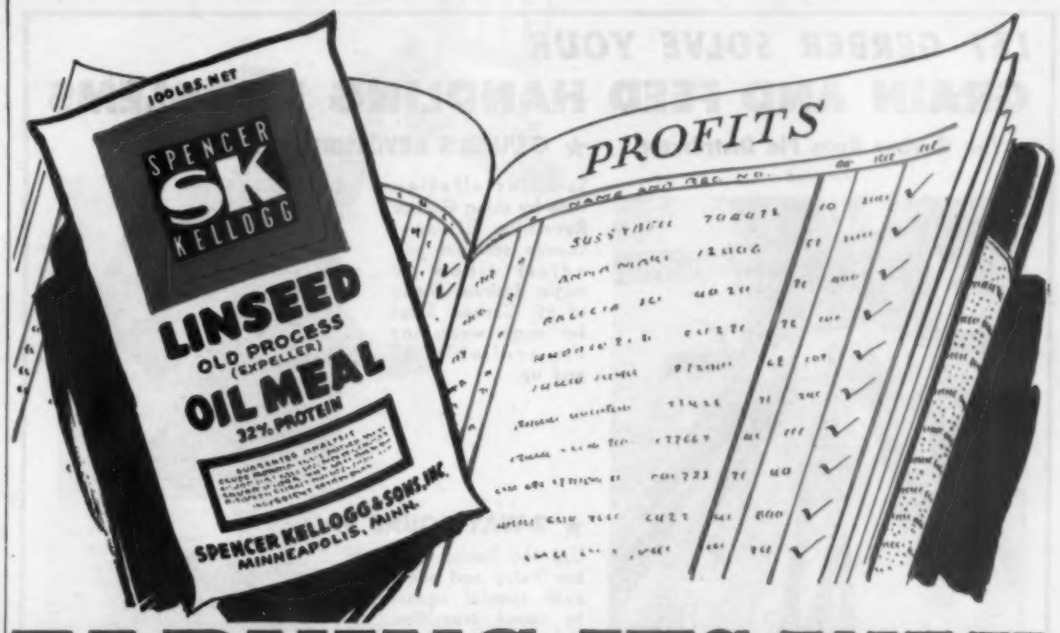

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Summer Lights for Layers

Even though the period between sunrise and sunset is growing longer, it is questionable whether shutting off the lights at this time of year is the wise thing for egg producers to do.

"Poultrymen should be cautious about discontinuing lights entirely at this time," says Milton Y. Dendy, University of Georgia extension poultryman. "And even though they decide not to follow a program of increasing light, it would probably prove profitable if the time switch remains set for the morning lights to come on as usual throughout the summer."

Mr. Dendy reports that many flock owners have noticed that when they cut off the lights at this time of year some birds in the flock immediately go into a neck molt or a complete molt and egg production drops off. The slump may not be sharp enough to be alarming, he says, but in many instances it is enough to seriously affect the profits from the flock.

Research work at several experiment stations, he notes, has demonstrated that light has a stimulating effect upon the hen's egg-laying activity. Some of the results from this work indicate it is beneficial to gradually increase the amount of light as the birds grow older.

Mr. Dendy suggests that flock owners who wish to try the principle of gradually increasing the amount of light given older birds should leave their time switches set for the lights to come on at 2, 2:30 or 3 a.m. This allows the lengthening of the day in the afternoon to serve as the mechanism for gradually increasing the amount of light until around June 21 when days begin to get shorter. Mr. Dendy recommends that after that date the clock be turned back at intervals to continue increasing the light allotment as daylight recedes.

Several commercial poultrymen have used the lighting system Mr. Dendy suggests for a number of years and have accepted it as a profitable practice.

◆

Cows Don't Need Lights

Night lights in a poultry house usually mean more eggs. Dairy cows, on the other hand, do not respond with much more milk when electric lights are left on after dark.

Recent research by the University of Idaho College of Agriculture strongly suggests that the men who care for the dairy herds after dark get more benefit from the night lights than do the cows, says D. W. Works, project director for the Idaho farm electrification committee. "Lights do not stimulate increased milk production," he reports.

◆

Barebacks Cut Profits

Barebacked broilers can cut deeply into a broiler grower's profits because the processor is likely to discount the price per pound by as much as 3¢ when he sees a number of feather-picked birds in a flock.

Since the main cause of bareback broilers is feather picking, poultry specialists at Virginia Polytechnic Institute recommend debeaking to overcome the problem. They say debeaking can best be done when chicks are a day old. And they are convinced that the low cost of debeaking a day-old chick—seldom more than ½¢ per chick—is returned plus a bonus in the market place.

◆

Early-Cut Hay Best

Ranchers attending a recent Gunnison County (Colo.) Feeding Research Corp. field day program learned they can get as much feed value or beef production from 5 acres of early-cut hay as they can from 7 acres of hay harvested at the usual time.

Results of the 10th annual feeding experiment conducted by the corporation were interpreted by Colorado State University and U.S. Department of Agriculture scientists.

Comparing efficiency of the feed, researchers found that it required 29.8 lb. of hay harvested Aug. 10 to produce a pound of beef, but it took only 8.7-10.5 lb. of hay cut on July 10 to produce a pound of gain on the heifer calves involved in the winter feeding study.

An analysis of the hay showed the

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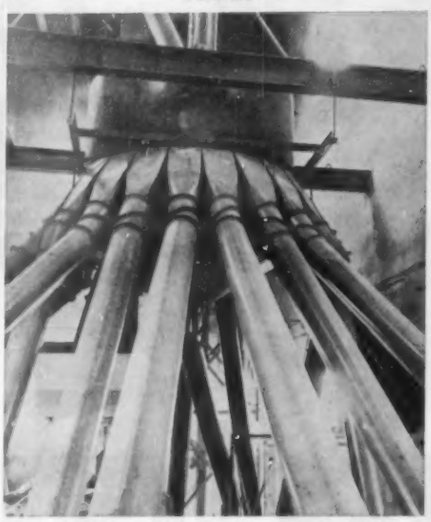

This illustration shows a typical Roto Flo installation using reversible elbows and Gerber's high quality bin spouting.

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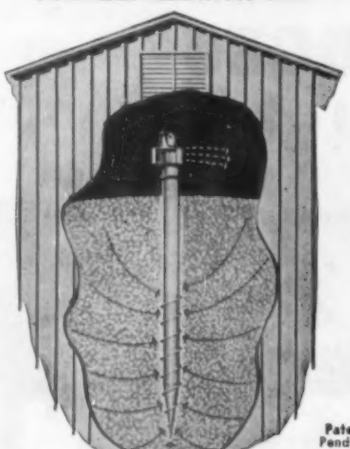

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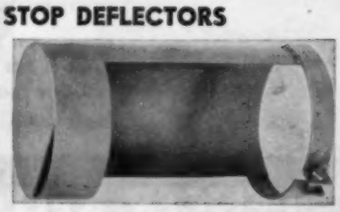

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early-cut hay contained 9.2% crude protein and .27% phosphorus, while average-cut hay showed 5.7% crude protein and .17% phosphorus. The increased nutrients of the early-cut hay and the fact that it is more easily digested were credited for the increased efficiency of that feed.

Researchers noted also that hay harvested Aug. 10 produced 3,000 lb. per acre. Hay cut July 10 yielded only 2,000 lb., but the after-growth following harvest amounted to approximately 1,000 lb., equaling the yield of the average-cut hay. Equal yields from the two different cutting methods can be expected in mountain valleys up to 8,000 ft. altitude, the researchers reported.

Dr. C. D. Story, associate animal husbandman with the Colorado State Agricultural Experiment Station, Ft. Collins, told the ranchers that the Gunnison results closely paralleled other feeding tests at Ft. Collins where early-cut alfalfa was compared with late-cut alfalfa hay on a dry matter basis.

"If ranchers are feeding 12.5 lb. of early cut hay per head per day, cattle probably will receive enough phosphorus, but at 7 or 9-pound feeding levels, there should be some supplement," Dr. Story advised.

◆

Off to a Good Start

Getting new-born pigs off to a good start is an important point of consideration in any swine production operation because the gains a pig makes while nursing the sow or during the period of 2-8 weeks of age are the most economical that it puts on during its life.

Dr. R. J. Meade, University of Minnesota professor of animal husbandry, notes that some producers do a good job of raising their pigs whether they are weaned early or left to nurse the sow until up to 8 weeks old. They accomplish this mission, he says, because they take measures to prevent anemia, they feed a good pig starter and they don't subject their pigs to several stresses at one time.

Dr. Meade says results of research at the University of Minnesota, like more similar work at other Agricultural Experiment Stations, show that pigs can be successfully weaned to a dry ration at 2-3 weeks of age. "Pigs weaned this early gained just as rapidly as did pigs that nursed the sow," Dr. Meade reports. "They did take slightly more feed per pound of gain to 8 weeks of age, but the net cost of the pigs was about the same at weaning time regardless of method of production."

Although early-weaned pigs under study gained at a slightly slower rate and less efficiently after 8 weeks of age than did pigs that nursed the sow until they were 8 weeks old, other advantages, such as being able to rebreed the sow sooner, to properly sequence a multiple farrowing program and to obtain more total pigs per sow per year, may offset the slight gain disadvantage.

Dr. Meade suggests that producers avoid subjecting their pigs to more than one stress at a time to reduce losses from disease.

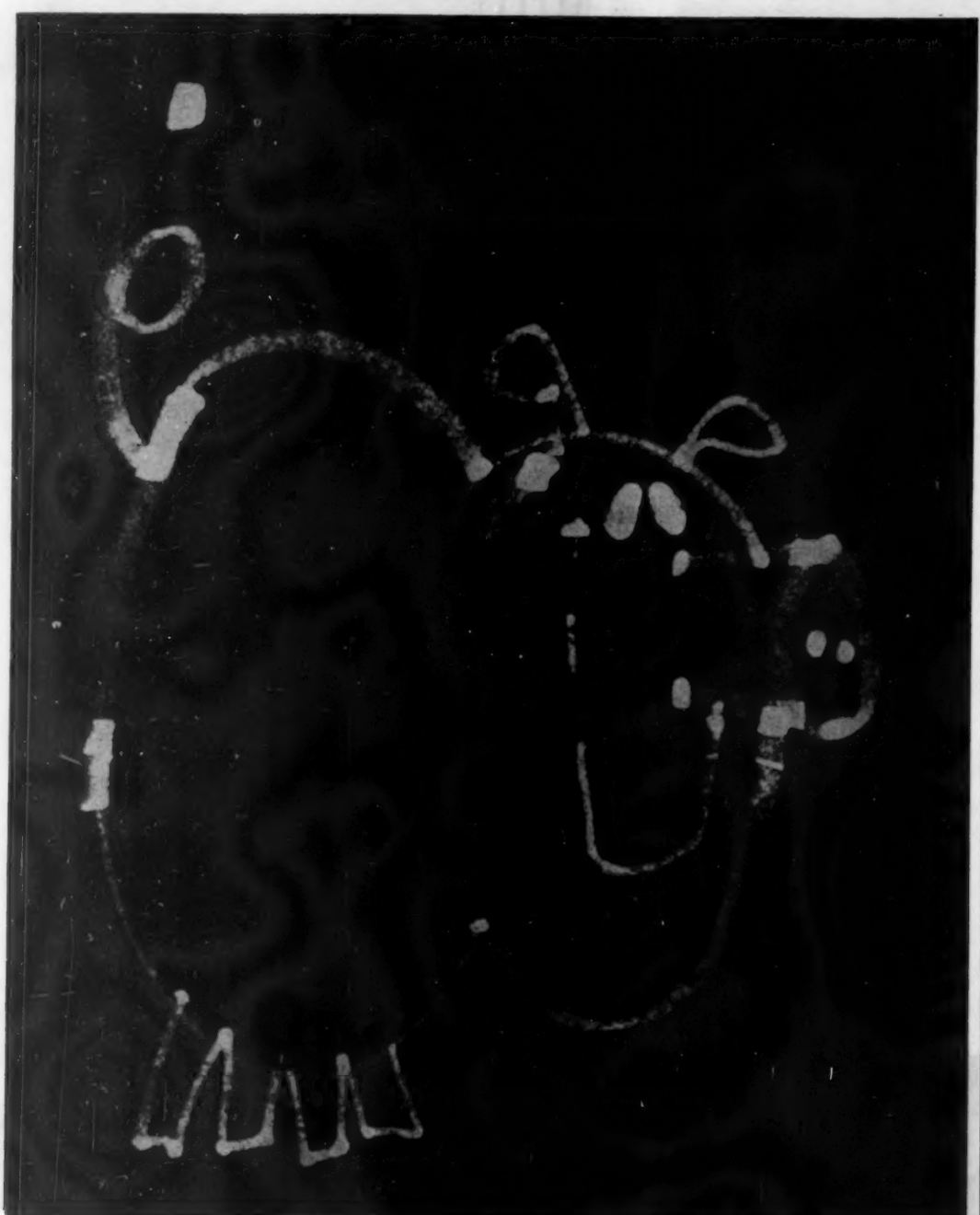
"Pigs should be castrated when small, usually at about 2 weeks, and not when they are weaned. Likewise, pigs should not be vaccinated for hog cholera or hog cholera and erysipelas on the same day they are weaned or on the same day they are castrated."

Stock Authorized

BALTIMORE, MD.—A decision to double authorized shares of common stock to 6 million for Commercial Solvents Corp. and announcement of anticipated first quarter earnings of 40¢ a share were highlights of the annual meeting of stockholders recently here.

Sales for the first three months of 1960 will be approximately 6% ahead of the 1959 first quarter figure of $15,880,000, said Maynard C. Wheeler, president. Comparative net earnings for the same period will reflect a sharp increase of approximately 40%.

"Barring a general downturn in the nation's economy," Mr. Wheeler said, "Commercial Solvents anticipates earnings in the range of $1.50 per share for 1960."



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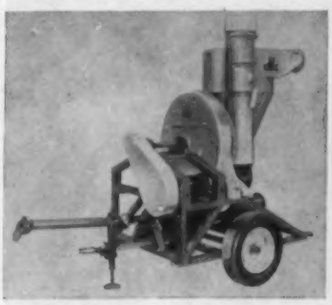
No. 7902—Grain Conveyor

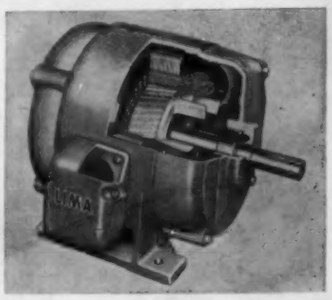
A mobile pneumatic grain conveyor, the 1,000 series power take-off Vac-U-Vator, has been announced by Dunbar-Kapple, Inc. Designed to operate directly from a 50 h.p. tractor, the unit is mounted on a two wheel chassis, and can be easily towed from one place to another, the company says. The unit moves up to 1,200 bu. grain an hour up to 150 ft. in distance and 45 ft. high. A single-stage compressor is driven by a shaft con-



nected directly to the tractor. Two universal joints on the shaft provide safe operation even when the unit and the tractor are not level, the company says. The compressor provides suction to pick up grain and pressure to blow it to its destination. A receiving cyclone separates grain and air coming from the compressor and sends the grain to the outlet pipe. An air lock on the receiving cyclone transfers grain from the suction side of the system to the pressure side. Careful design of the air lock eliminates grain damage, the company says. Flexible 8-in. pipes are provided with the unit as standard equipment. The pipes are connected to the inlet and outlet fittings with quick-connect clamps. Extra lengths of pipe are available to fit practically any grain-transfer situation. These also clamp into place, and rubber seals at the points of connection keep out dirt and moisture. The PTO Vac-U-Vator can be operated in any kind of weather—grain being moved is never exposed to the outside atmosphere, the company says. The unit can be used for either loading or unloading. It can be used with flat storage buildings, motor trucks, grain boxcars, round bins, grain barges, and virtually any kind of storage facility. For more information check No. 7902 on the coupon and mail.

No. 7905—Redesigned Motors

Lima Electric Motors Co., Inc., announces a redesigned Type RS drip-proof general purpose motor, rerated to meet new specifications and featuring fully seasoned cast iron frames with integrally cast feet to assure high rigidity in mounting. The motors are available in ratings from 1 to 150 h.p.; frame sizes 182 through 505. Other features, company literature says, include solid die cast rotors with dual integrally cast cooling fans and dynamically balanced rotor assembly. The motors are Mylar insulated throughout. Accurately machined registers and bearing fit in the cast iron end bells. Specially designed steel baffle plates, deeply drawn, are provided in the end bells for extra pro-



tection to the windings and coils, the company says. Drip-proof enclosure provides protection against dirt, flying chips and dripping liquids and is furnished throughout the entire frame size range. Double width sealed ball bearings require no lubrication. Diagonally split cast aluminum connection boxes are equipped with cadmium plated cover screws. The motors operate continuously at a rated temperature rise of 40° Centigrade. They are available for three or two phase, in all standard frequencies and commercial voltages below 600, the company says. For details, check No. 7905 on the coupon and mail.

No. 7909—Animal Health Product

Hilltop Laboratories announces the availability of "Sulfa-Zene," a 12-5% solution of sodium sulfamethazine. The product is recommended for use in drinking water for poultry and livestock. It is used for the control of cecal and intestinal coccidiosis, infectious Coryza, pullorum disease, acute fowl cholera in chickens and for coccidiosis and acute fowl cholera in turkeys. For ducks, it can be used to reduce mortality in anatipestifer disease, the company says, and for

horses, for controlling strangles and secondary infections related to respiratory infections, as well as bacillary enteritis, septicemia and navel ill in foals. It is designed for control of foot rot, metritis, septicemia and bacillary enteritis in cattle, and for treatment of secondary infection in white scours, coccidiosis and septicemia in calves. A number of diseases are also treated with the product. For information, check No. 7909 on the coupon and mail.

No. 7904—Locking Wedge Mount

Patent applications on a "Locking Wedge Mount" for rotary vibrators, designed to eliminate "creep-out" problems, have been filed by Martin Engineering Co. The locking wedge mount engages securely in the female on hopper car chutes without the need for blows from a heavy

sledge, the company says. The positive lock-in of the wedge mounting assures better transmission of vibration, the company says. Removal of the mount is accomplished with a 2 lb. hammer swung horizontally, driving the key back into an appropriate slot, where compound wedge action causes separation of the locked male and female mount. The mount weighs 25 lb. For details, check No. 7904 on the coupon and mail.

No. 7888—Feed Body Line

New Way Manufacturing Co. announces its new line of Challenger bulk feed bodies. The units are available from 4 to 20 ton capacity with mechanical, hydraulic or air unloading. According to the company, the latest in engineering is incorporated

for loading and unloading in these newly developed bodies. Unloading auger lengths are available from 15 ft. to 20 ft. Finger-tip controls may be operated from the cab. The bodies have dual controls for operating compartments. For details, check No. 7888 on the coupon and mail.

No. 7900—Feed Body Catalog

A 16 page illustrated feed body catalog is available from Simonsen Manufacturing Co. The catalog gives a full description by model of its line of bulk feed bodies, bulk and sack bodies, unloader kits for conversion of standard truck bodies to bulk and sack delivery units and the company's new "Feedilizer," a bulk feed and bulk fertilizer body. For details, check No 7900 on the coupon and mail.

No. 7910—Southern Farmer Promotion

Chas. Pfizer & Co., Inc., offers a promotion for southern farmers which features a weather forecasting display. The backboard of the product rack carries a "weather eye" disc

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- ☐ No. 7903—Inhalation Product
- ☐ No. 7904—Locking Wedge Mount
- ☐ No. 7905—Redesigned Motors
- ☐ No. 7906—Layer Management Book
- ☐ No. 7907—Conveyor Book
- ☐ No. 7908—Swine Management Booklet
- ☐ No. 7909—Animal Health Product
- ☐ No. 7910—Southern Farmer Promotion
- ☐ No. 7911—Pallet Loading Machine
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which shows up blue, red or pink depending on the state of the weather for the next 24 hours. The weather page from a southern farm publication is also attached to the display, offering a forecast for the weather for the month, with tips on animal health. A number of Pfizer's animal health products are displayed also. For details, check No. 7910 on the coupon and mail.

No. 7907—Conveyor Book

A book devoted to applications and selection of screw conveyors, screw feeders and components, has been released by Link-Belt Co. The 76-page book, "Screw Conveyors and Screw Feeders," illustrates more than 20 different types of screws, 14 types of troughs with four types of

covers, five types of discharge openings and two types of feeders. The book shows how screw conveyors are used for conveying and elevating, distributing, reclaiming, collecting, mixing, blending, agitating, aerating, heating and cooling materials. It also contains a list for which conveyors may be used. For copies, check No. 7907 on the coupon and mail.

No. 7903—Inhalation Product

Whitmoyer Laboratories, Inc., announces the development of a new inhalation product for poultry. The company says its "N-S Dust" offers an effective treatment for CRD or air sac infection in chickens. The product combines two antibiotics—dihydrostreptomycin sulfate and neomycin sulfate. The treatment is inhaled directly into the nasal passages and windpipe. The product is dusted over the birds and the birds inhale billions of antibiotic particles which then come into direct contact with the infected tissues, the company says. Listed by the company as results to be expected are: Improved weight gains, increased feed consumption, improved feed efficiency, reduced severeness of CRD symptoms, reduced mortality within 24 to 72 hours, and reduced bacterial count in respiratory tract for one to two weeks. For details, check No. 7903 on the coupon and mail.

No. 7850—Mold Inhibitor

A chemical control for mold and heating, designed to double and sometimes triple the storage life of certain feed ingredients and feed formulations has been announced by E. I. du Pont de Nemours & Co., Inc. The control method consists of adding up to 0.4% du Pont "Impedex" sodium propionate NF to feed formulas, or to feed ingredients during processing. Studies showed that growth of mold is generally responsible for heating of feedstuffs under warm, humid storage conditions. Sodium propionate and calcium propionate, used by the baking industry to inhibit mold in baked foods, were found in these studies to be effective for similar protection of corn meal. Trends toward high-energy feeds have intensified the problem of mold, because the mold organisms can use the extra energy content for growth and production of heat as well as animals can. Molasses also makes a feed formula susceptible to mold because it increases the initial moisture content and increases the mixture's pickup of moisture from the air. The du Pont studies have included corn meal, brewers wet and dried grains, fish meal, vegetable oil meals, molasses, dog food, horse feed, pellets of coastal Bermuda grass and various common types of rations for dairy cattle, beef cattle and poultry. The degree of protection from various percentages of "Impedex" was found to depend on the moisture level, storage temperature and pH of the feed, and the concentration and viability of mold spores present. For details, check No. 7850 on the coupon and mail.

No. 7912—Mastitis X-Ray Display

Chas. Pfizer & Co., Inc., has announced a new X-ray display that illustrates "the advantages of the

liquid Terramycin-type formula for mastitis." The display contains four X-ray negatives with an explanation of the action of the liquid type formulation for mastitis. The display also contains 20 reprints of the original scientific research report as it appeared in the February, 1960, issue

"Our new STRONG-SCOTT equipment makes operating much easier and faster."

Strong Scott

says Carl Smith, Manager of Farmers Co-op Grain & Stock Company, LeRoy, Minnesota.

AUTOMATION? "You bet," says Carl Smith, Manager of the Farmers Co-op Grain & Stock Company of LeRoy, Minnesota. "Where we used to have five men to do the work, we now need only one man and can triple our output."

"With the Strong-Scott quick-change Hammermill we have as many as five different grinds in process without shutting down the Hammermill," said Smith. "The farmers really like this because in busy times they used to wait as long as five or six hours for processing and now 20 to 25 minutes is as long as anyone has to wait."

The new addition to the Farmers Co-op Grain & Stock Company at LeRoy, Minnesota, built by **VOLDEN CONSTRUCTION**, Henning, Minnesota, has been in operation only a few months and already the Strong-Scott Hammermill and two Triple Action Mixers have proven they will quickly pay for themselves. "On a normal grind, we turn out two ton in about eight minutes and can then mix two ton thoroughly in three to five minutes in one of our Triple Action Mixers," says Carl. "On a fine grind, which is our 8/64 screen," added Smith, "we grind five ton an hour."

Additional Strong-Scott equipment in use includes legs, drag, crusher, baggers, and a molasses handling system. "A big plus for us is the fine service we get from the Strong-Scott Company," Smith concluded.

A remote control for each of the five quick-change screens gives Carl Kempe, operator, immediate selection of grinding size without shutting down the Hammermill between grinds.

Two Strong-Scott TRIPLE ACTION MIXERS provide fast, efficient batch mixing with added molasses when required.

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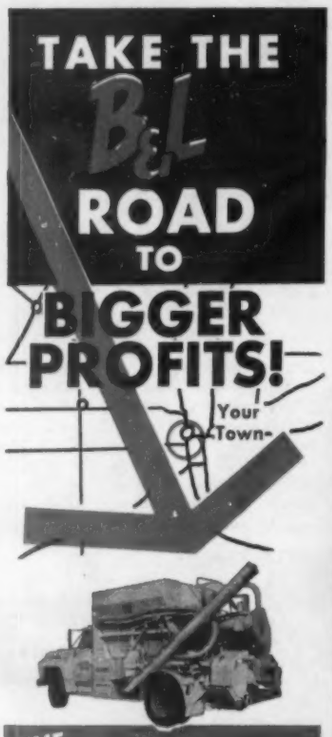

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of Veterinary Medicine. Pfizer spokesmen said the research indicates that the liquid type formulation is more widely dispersed and faster acting than the ointment type formula. For additional information, check No. 7912 on the coupon and mail.

No. 7911—Pallet Loading Machine

A pallet loading machine which permits high speed one-man loading of standard pallets for transporting by fork lift truck, has been announced by the Power-Curve Conveyor Co. The unit's powered turn-table station is used with a standard Power-Curve flexible loader and swivel stacker. Bags are power propelled into position on the pallet with the machine operator guiding each bag, using any palletizing pattern. When one pallet is loaded, the turntable is rotated to position a new pallet while the loaded pallet is removed by fork lift. More than 1,000 bags an hour can be palletized by one man, the company says. For details, check No. 7911 on the coupon and mail.

No. 7906—Layer Management Book

A layer management book which details recommended procedures for managing layers for top egg production has been made available by Colonial Poultry Farms, Inc. Information is presented on the best methods of starting pullets, confinement rearing requirements, vaccination schedules, laying flock requirements and quality control methods for market eggs. Copies can be obtained by checking No. 7906 on the coupon and mailing.

No. 7908—Swine Management Booklet

"An Ounce of Prevention is Worth a Pound of Profit," is the theme of a two-color, 12 page booklet on swine management, released by Merck & Co., Inc. One section, in tabular form, itemizes enteric diseases of swine, cause, how spread, key symptoms, control and/or prevention. Other sections cover antibiotic supplements in livestock rations, production hints and reference charts that include normal swine pulse and respiration rates, body temperature, swine gestation table and daily water consumption rates. A listing is given of essential amino acid requirements for weanling pigs and vitamin requirements for swine in all stages of growth. For copies check No. 7908 on the coupon and mail.

No. 7901—Revised Product Label

A new package size and directions for use against a number of common livestock diseases are included in the revised labelling of Sulfa-Q-50, sulfaquinoxaline brand of American Scientific Laboratories, Inc. The new 3½ oz. size of the formulation is mixed with 50 gal. of drinking water to make a 0.025% solution, and with 30 gal. of water for a 0.04% medication. These are the solutions used to control and prevent coccidiosis in chickens and turkeys. The product is also packaged in an 8 oz. and 1 gal. size. For details, check No. 7901 on the coupon and mail.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number of the coupon and forwarding it to Feedstuffs.

No. 7857—Magnet pulley bulletin, Stearns Magnetic Products.

No. 7858—Dust control brochure, Dracco Division of Fuller Co.

No. 7859—Level indicators, Fuller Co.

No. 7860—Feed value folder, Doty Laboratories.

No. 7861—Bag closing machine, Bemis Bro. Bag Co.

No. 7862—Nutrient level card, Peter Hand Foundation.

No. 7863—Grain moving machine, Dunbar-Kapple, Inc.

No. 7864—Single-roll crusher, C. O. Bartlett & Snow Co.

No. 7865—Catalog on bucket elevators, Andrews Machine Co.

No. 7866—Hog waterer, Brower Manufacturing Co.

No. 7867—Drug for blackhead disease, American Cyanamid Co.

No. 7868—Enzyme materials, Biddle Sawyer Corp.

No. 7869—Enzymatic silage product, The Kalo Co.

No. 7870—Drying fan, heater, Chicago Blower Corp.

No. 7871—Milk replacer base, Borden Special Products Co.

No. 7872—Pneumatic rappers, National Air Vibrator Co.

No. 7873—Egg cooling units, Master-Bilt Refrigeration Manufacturing Co.

No. 7874—Chick premix, American Cyanamid Co.

No. 7875—Tailored plastic resin, Phillips Chemical Co.

No. 7876—Yeast fraction, Amber Laboratories, Inc.

No. 7877—Poultry health product, Hilltop Laboratories.

No. 7878—Lift truck booklet, Towmotor Corp.

No. 7879—Grain storage building, Stran-Steel Corp.

No. 7880—Large twin mill, Knoedler Manufacturers.

No. 7881—Pellet cooler, Ross Machine & Mill Supply, Inc.

No. 7882—Iron anemia product, Myzon Laboratories.

No. 7883—Poultry disease pamphlet, Delaware Poultry Laboratories.

No. 7884—Bulk handling folder, Link-Belt Co.

No. 7885—Auto leasing study, Foundation for Management Research.

No. 7886—Grain dryer, The Mathews Co.

No. 7887—Feed mixer, Phil-Rite Rollo-Mixers.

No. 7889—Aluminum feed trucks, Sprout, Waldron & Co.

No. 7890—Measuring device, Daffin Manufacturing Co.

No. 7891—Pig injectable iron, Merck & Co., Inc.

No. 7892—Meat extender, Taste Engineering, Inc.

No. 7893—Hay mill, Wetmore Pulverizer & Machinery Co.

No. 7894—Air driven valve, O. B. Armstrong & Son.

No. 7895—Egg sanitizer cleaner, Oakes Manufacturing Co.

No. 7896—Bulk feed units, Curl Engineering & Manufacturing Co.

No. 7897—Laboratory diet, A. E. Staley Manufacturing Co.

No. 7898—Batching handbook, Howe Scale Co.

No. 7899—Vitamin E brochure, Hoffmann-LaRoche, Inc.

Disease-Free Pigs Offer Fast Gains, Better Efficiency

URBANA, ILL.—Hog farmers producing disease-free stock will find they can get more animals to market quicker and still use less feed, says Dr. G. T. Woods, University of Illinois veterinarian.

Pork production efficiency will go up from 20 to 25% when herds are completely free of disease. And these pigs will use 100 lb. less feed for 100 lb. of gain.

Disease-free pigs are taken surgically from the sow from 2 to 4 days before farrowing and are kept in isolation for one week. Then, they are transferred to brooders holding 6 pigs each.

The pigs are distributed to farms at the age of 1 month.

"The disease-free program will be in operation throughout Illinois in the next 2 to 5 years," says Dr. G. T. Woods, University of Illinois veterinarian. "Although the original cost of disease-free pigs may seem a bit high, prices should come down with second generation stock obtained from farmers."

An Iowa veterinarian, Dr. B. O. Combs, Conrad, is producing disease-free pigs for sale to farmers now. The cost per pig for delivery at this laboratory is $42.

Top management practices are vital when farmers invest in disease-free stock. Without good management, the pigs may not remain disease-free very long.

The animals should never come into contact with other swine. Double fencing may be needed to avoid cross-fence contact with neighboring animals.

Keep traffic in or near the livestock area at a minimum. Salesmen, livestock buyers, or visitors should not be allowed in lots or buildings where animals are kept.

Avoiding just one disease, such as virus pig pneumonia, is reason enough to restrict traffic and insist upon good management practices.

Yards Set Closing

LOS ANGELES, CAL.—The Los Angeles Union Stockyards Co. has announced a schedule for the orderly termination of its operations. No livestock will be received at the yards after April 26, and none will be sold at the yards after 3 p.m. April 29. All livestock must be removed from the yards by midnight, April 30.

Two new yards are expected to be in operation in May. The Los Angeles Livestock Marketing Co. is building a $1 million facility. The new yard is expected to be open for business after April 30.

In Artesia, the Livestock Marketing Assn. of Los Angeles is planning a $250,000 plant. A 57-acre livestock yard is planned, with a starting lot of 10 acres for cattle, sheep and hogs. Target date for the Artesia plant is the end of May.

Turkey Study Grant

FARGO, N.D.—A $1,500 grant has been given to the poultry department of the North Dakota Agricultural Experiment Station to carry on additional experimental work with turkeys, according to Dr. Reece L. Bryant, chairman of the department. The gift is from the North Dakota Turkey Federation.

Feeding trials with North Dakota grains will be carried on with the increased number of poults the turkey association funds will provide.

The grant will be utilized when the new 50x225-foot turkey research building is completed. The new structure will provide for 48 research pens.

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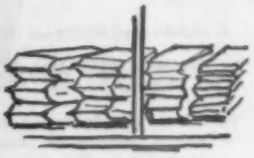

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FEEDSTUFFS reprints

The following reprints of articles which have appeared in Feedstuffs may be obtained on order from Feedstuffs' Reader Service Department:

3. **Mobile Feed Milling**—a series of five articles—by Al P. Nelson.. **50c**

26. **Feedstuffs' 1960 Analysis Table for Feed Ingredients**—by Charles H. Hubbell **20c**

35. **Science and Service**—a 16-page summary of AFMA Golden Year articles covering all phases of feed industry. Quantity discounts. Imprinting distributor's name for nominal additional charge.... **50c**

38. **Balancing Swine Rations**—Dr. D. E. Becker, University of Illinois.. **20c**

41. **Computer Formulation of Feeds**—Dr. W. H. Hastings, Kansas State University **20c**

42. **Nutritional Physiology of the Rumen: A New Approach to Rumen Nutrition**—Dr. J. C. Shaw, Formerly at University of Maryland.. **20c**

43. **Problems in Bulk Handling and Suggested Solutions**—J. D. Johnson, General Mills, Inc. **20c**

47. **Extending Pellet Mill Die Life**—by R. L. Patterson, Procter & Gamble Co. **35c**

48. **Organic Arsenic Compounds as Feed Additives**—by Dr. M. L. Scott, Cornell University **20c**

51. **Broiler Industry Management**—Prof. Ewell P. Roy, Louisiana State University **20c**

52. **Analysis and Feeding Value Tables for Beef Cattle and Sheep**—6-page article, by Dr. S. H. Morrison, Nutrition Consultant, 25c single copy; 3-5 copies, 15c ea.; 10 or more, 10c each.

53. **Grain Bank Operation**—Dr. W. S. Farris, Purdue University **20c**

54. **Cost of Producing Broiler Meat**—Dr. N. V. Helbacka, University of Maryland **20c**

55. **Feed Manufacturers—Beware of Treated Grain**—Dr. A. A. Camp, Texas Agricultural Experiment Station **20c**

56. **Use of Tables, Graphs and Simple Analog Computers in Formulating Least-Cost Feed Mixes**—Dr. R. F. Hutton, Pennsylvania State University **20c**

57. **Protein and Energy for Layers**—Dr. M. L. Sunde, University of Wisconsin **20c**

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64. **Farmer-Businessman Communication**—Dr. Everett M. Rogers, Ohio State University **20c**

65. **Suggestions on Nutrient Requirements of the Pig**—Dr. T. H. Cunha, University of Florida **20c**

66. **Pelleted Grain for Dairy Cows**—Dr. T. H. Blosser, Washington State University **20c**

67. **A Report on Annual Meeting of Poultry Section**—Dr. J. R. Couch, Texas A&M **20c**

68. **Proceedings of 1959 Animal Nutrition Research Council** **25c**

69. **Pelleted Rations for Beef Cattle**—Dr. Wise Burroughs, Iowa State University **20c**

70. **Tomorrow's Formulas for Swine Feeding**—Dr. Damon Catron, Iowa State University **20c**

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SELLIN' SAM **By Jim Zilverberg**

"Honey—I made a big feed sale today so we won't lose the furniture after all."

STAR-KIST NAMES AGENCY

TERMINAL ISLAND, CAL.—Curtis, Sarver & Witzerman, Inc., Long Beach, Cal., has been named to handle advertising for the by-products division of Star-Kist Foods, Inc., Terminal Island, according to C. R. Bunten, division manager of the company. John Curtis, agency vice president, will direct work on the account. The by-products division line includes fish meal, from Star-Kist operations in Peru, and shortly from Star-Kist facilities in Mayaguez, Puerto Rico; fish solubles and other by-products converted by the company into animal nutrition factors.

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The MARION MIXER is your best answer to any mixing problem. You need only one mixer in your plant or mill to satisfy all your mixing and blending requirements, the MARION MIXER.

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These Kent sales clinics are held several times a year—at the Kent plant and in the dealers' area. At these meetings Kent dealers are brought up to date on all phases of the feed business and how they can convert new developments and ideas into profit. In addition to talking feed, Kent dealers get information and ideas on how to handle credit, the profit opportunities provided by bulk feed handling, livestock management ideas they can pass on to customers.

SALES PROMOTION HELP

Kent Feeds carries on an extensive regional and local advertising program to help you sell Kent Feeds. Kent salesmen work with you on special promotion events like Open Houses, Appreciation Day sales. It's all designed to help you sell more Kent Feeds—make more money.

DEALER GOODWILL EVENTS

Kent dealers have the nation's No. 1 country band, Leo Greco, available for dealer dances, goodwill events and special sales promotion activities. Leo Greco and his Pioneers, in their distinctive Kent Feeds uniforms, appear at fairs, livestock shows and other major agricultural events. Another plus for every Kent dealer.

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"UNIMAL INSPECTION"—Ervin L. Peterson, assistant secretary of agriculture (left), Dr. Earl L. Butz, Purdue University's dean of agriculture (center), and Karl D. Butler, secretary of the National Institute of Animal Agriculture, inspect the "Unimal," composite animal figure adopted as the symbol of animal agriculture. Toy replicas of the "unimal" were distributed as favors at a dinner session of the National Institute of Animal Agriculture conducted at Purdue April 4-5.

Feed Supplies Maintain Top Rating In Farmer Cooperative Business

WASHINGTON — Feed held its first-place ranking among farm production supplies handled by farmer cooperatives during 1957-58.

The gross business volume reported by the cooperatives amounted to $14 billion, according to the latest annual survey made by Farmer Cooperative Service, USDA.

Feed supplies purchased by cooperatives for patrons amounted to a gross business of $1,099,197,000.

Total farm supply business, including such items as feed, building materials, containers, farm machinery and equipment, fertilizer, meats and groceries, petroleum products, seed and others, was $3,267,146,000.

Over $10 billion of the gross business was created through the marketing of products for patrons.

Gross business showed a 4% increase over the fiscal year ending in 1957.

The total net volume for the cooperatives was $10.7 billion, or an increase of 3% over the preceding year. This net figure is determined by eliminating all duplication arising from business done between cooperatives.

Here are some other highlights pointed out by the survey:

The number of farmer cooperatives in the U.S. decreased to 9,716, a loss of 156 associations from the preceding year.

Also, a small decrease occurred in memberships, with a present total of 7,485,090. Officials expect a slight decrease in numbers with the trend toward fewer farms.

Reorganizations, including consolidations and mergers account for some of the decrease in numbers, too. Reorganizations were reported in all of the important commodity groups, but the greatest activity occurred in the dairy industry.

Estimated Business in Specified Commodity and Service Groups of Marketing, Farm Supply, and Related Service Cooperatives, 1957-58*

Item	No. of cooperatives handling	Gross business $1,000	Net business after adjusting for duplication† $1,000
Products marketed for patrons:			
Beans and peas (dry edible)	70	34,698	26,782
Cotton and cotton products	613	460,815	412,501
Dairy products	1,771	3,490,673	2,913,161
Fruits and vegetables	759	1,169,344	787,249
Grain, soybeans, soybean meal and oil	2,692	2,621,725	1,677,687
Livestock and livestock products	593	1,433,994	1,299,024
Nuts	109	126,088	93,072
Poultry products	662	416,348	345,438
Rice	59	167,142	145,012
Sugar products	65	349,688	349,688
Tobacco	38	145,161	145,161
Wool and mohair	289	23,862	19,725
Miscellaneous	218	52,391	46,792
Total farm products	$6,855	10,491,929	8,261,132
Supplies purchased for patrons:			
Building materials	1,498	111,596	75,919
Containers	1,045	56,459	26,845
Farm machinery and equipment	1,806	99,836	71,950
Feed	4,523	1,099,197	808,355
Fertilizer	4,222	460,026	283,322
Meats and groceries	926	58,397	49,455
Petroleum products	2,784	896,053	552,415
Seed	3,820	133,440	95,833
Sprays and dusts (farm chemicals)	2,478	63,143	42,978
Other supplies	4,592	288,999	178,197
Total farm supplies	$7,339	3,267,146	2,185,269
Receipts for services:			
Trucking, cotton ginning, storage, grinding, locker plants, miscellaneous	$5,465	**246,641	**246,641
Total business	$9,716	14,005,716	10,693,042

*Preliminary. Does not include data for Alaska and Hawaii.
†Does not include business between cooperatives.
$Adjusted for duplication arising from multiple activities performed by many cooperatives.
**Charges for services in which no duplication occurs.

'Farmers Will Need Increasing Seasonal Production Capital'

PULLMAN, WASH.—The progressive and aggressive farmer is going to require increasing seasonal production capital, Harry J. Beernink, general manager of the Western Farmers Assn., Seattle, told the Pacific Northwest Conference on Banking at its annual meeting in Pullman, Wash.

"If I were his banker, in giving consideration to his needs after analyzing his over-all statement, I would be guided by my judgment of his managerial ability," he said. "Last, but not least, I would consider whether he had a guaranteed market outlet, preferably protected by a contract with a dependable processor and/or distributor.

"The intelligent farmer no longer produces by guess, or plants the variety of seeds or grows the kind of chickens or hogs that meets his fancy, without determining whether his end product will be acceptable and in demand in the market place."

Timing of production is being given more and more consideration, Mr. Beernink said. He emphasized the importance of timing in agricultural production to fit a market in the same way that many manufactured products are scheduled to fit holiday and seasonal demand.

"Contrary to some of our earlier impressions," he told those attending the banking conference, "egg consumption varies little from month to month throughout the year.

"Today, our chart of production, which is also true of other progressive areas, will run almost straight across throughout the year, avoiding the peaks and valleys.

"This has been accomplished by multiple brooding with placement of layer chicks at 3 to 4-month intervals, thereby providing a constant supply of fresh eggs every week in the year, and, insofar as our shop is concerned, the elimination of any storage eggs.

"Production of fryers—a fast growing industry—is another good example. While consumption of fryers has increased tremendously every week in the year, we know that, during the summer holidays, particularly a 3-day holiday, demand will be stepped up sharply. Our bookings with fryer producers are worked out a year in advance and are tied in closely with our major retail outlets, giving the breeder who furnishes the hatching eggs, the hatchery people, the grower and ourselves as the processor, a carefully timed schedule.

"If I were a banker," Mr. Beernink concluded, "I would look to the following ten conclusions:

1. Larger farms and fewer farm families and farm workers.

2. Increasing demand for greater technological know-how on the part of the farmer as a plant and animal expert, a mechanic, nutritionist and economist.

3. Increasing need for greater managerial ability in terms of handling a larger farm plant with more varied activities and responsibilities.

4. Increasing capital requirements for land and other assets.

5. A high ratio of purchased farm supplies which in turn makes for a relatively rigid cost structure in agriculture.

6. More extensive facilities in processing, including packaging, freezing, dehydrating, etc.

7. A continuing trend toward adding more convenience factors and items to food in order to satisfy consumer desires.

8. More rigid buying requirements on the part of retailers to insure continuity of supply, maintenance of high quality and uniformity of products.

9. Pressure will be great to adopt new methods as they continue to develop.

10. Products will move to fewer and larger market outlets."

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Decline of Milk Cows Drops Off in '59; Number of Dairy Heifers in Nation Climbs

WASHINGTON — Members of the nation's dairy industry may be surprised to know that the number of replacement dairy animals in the nation showed an increase during 1959. Accompanying this increase was a let-up in the decline of milk cow numbers.

According to a report prepared by Herbert Kriesel, U.S. Department of Agriculture agricultural economist, the number of heifers 1 to 2 years of age kept for milk cows had declined each year from 1954 to 1959. On Jan. 1, 1960, this number increased 3% over a year earlier. Also, the number of heifer calves under 1 year of age turned upward as of Jan. 1, 1959, and showed a 4% gain during the year.

In relation to the number of mature cows on hand, the number of young stock on Jan. 1, 1960, was at a record high level.

The number of milk cows on farms declined less than 1%. This was the lowest decline for any calendar year since 1953.

The distribution of cows among regions has changed considerably in the past 15 years. All regions have shown declines, however.

Cow numbers in the West North Central and South Central states have dropped approximately 33%. The North Atlantic states, on the other hand, showed a decline of less than 6% from Jan. 1, 1945, to Jan 1, 1960.

The decline in the West North Central and South Central states accounted for two-thirds of the total decline in the U.S. as a whole from 1945 to 1960. The East North Central states accounted for less than one-fourth of the decline. The remaining three regions accounted for less than 5% each.

This regional redistribution of milk cows reflects two major developments: First, the decline in demand for butter, which in turn reduced the demand for milk in many states in the Great Plains and Western cornbelt, and second, increased demands for fluid milk near the populous areas of the country.

Last year, all regions showed an increase in the number of young dairy stock. With heifers from 1 to 2 years of age, numbers ranged up to 6% in the South Atlantic and Western states. And increases ranged from 2% in the East North Central states to 6% in the Western and North Atlantic states.

The rate of decline in numbers of dairy cows depends mainly on the rate at which dairy farms shift to other enterprises. Because of the expensive facilities now needed on dairy farms, there is relatively little shifting done to other livestock enterprises.

According to Mr. Kriesel, the increase over the years in the rate of milk production per cow—over 2% a year on the average—has been mare than enough to offset the decline in number of milk cows. Milk output rose to record high in 1957 and declined only slightly the next 2 years.

There is little reason to doubt that the rate of milk production per cow will continue to increase as much as the average of the last several years, says Mr. Kriesel. With the slow-down in the rate of decline in numbers, and the possibility of some increase, production is likely to turn upward in the next year or so.

"In fact," says Mr. Kriesel, "it is quite possible that the increase in production will be more rapid than the increase in commercial demands for milk products.

"Prices to farmers for milk will be supported at the same level in 1960-61 as last year. An increase in production would boost cash receipts for dairymen. They may reach a new high this year. However, production expenses also are likely to be higher," he said.

California Studies High-Barley Ration for Cattle

SACRAMENTO, CAL.—Some half dozen trials involving several hundred head of cattle are scheduled in California during the next few months to compare a diet of almost pure rolled barley with a conventional feed.

Smaller scale tests already have shown that cattle can thrive without the roughage—usually hay—which always has been considered essential to a bovine diet.

In one such trial, conducted as a University of California experiment, steers fed the high barley ration gained as well and graded as well as those on regular feed. Final figures, including carcass quality tests, are not complete.

"We are very interested," said Glen Lofgreen, University of California animal husbandry specialist, "because there was essentially no difference in rate of gain and there was better feed conversion in the barley diet. Commercially, of course, it is strictly a matter of economics: Does the barley, which normally costs more than hay, pay for itself?"

Since barley is deficient in protein, calcium and vitamin A, a 5% supplement of these ingredients has been added in trials so far.

The tests to be made also will probe the potentialities of use in the same way of other grains such as milo or wheat. Addition of cheap supplements such as sugar beet pulp, cottonseed hulls, molasses and small amounts of hay, also are under consideration in this respect.

Swisher Adds Mills

DANVILLE, ILL.—Three new mills have been added recently to the Swisher Feed Service group of the William Davies Co., Inc. The new mills include Ruff's Feed & Supply, Quincy, Ill.; Fross Feed Mill, Clayton, Ill., and Washburn Feed Mill, Washburn, Ill.

"The increased emphasis on bulk feeds and the increased use of super concentrates by local mills are definitely a growing trend," said Dan Lavery, general manager. "The search for ways to reduce feed costs affects the buying habits of farmers, and this has made more important the local feed service mills that supply bulk items of grain and soybean meal."

Johnny Unitas

PAPER STOPS PASS—Johnny Unitas, Baltimore Colts professional football quarterback, points to one of the indentations on the Expanda-Kraft target showing how the paper "gave" but did not break under a barrage of his powerful passes. A target made of ordinary kraft paper was broken by Mr. Unitas with a single pass.

New Extensible Kraft Paper Is Developed

ATLANTIC CITY — Development of an extensible kraft paper with "two-way stretch" has been reported by the Hollingsworth & Whitney Division of Scott Paper Co.

The paper, called "Expanda-Kraft," was demonstrated in connection with the American Management Assn.'s National Packing Exposition here.

It is designed principally for conversion into multiwall bags for cement, grain, feed, fertilizer, chemicals and other granular, powdery or pelletized materials.

"With improved extensibility, both lengthwise and crosswise, the H&W paper gives multiwall bags high resistance to breakage," say Scott officials. "The lengthwise 'stretch,' up to five times more than ordinary kraft, helps to prevent the paper from rupturing on impact."

Because the paper is stronger than ordinary kraft, officials say, the lighter weight stocks can be used for making bags.

Expanda-Kraft costs slightly more per pound than ordinary kraft paper, but "it offers production and handling economies that offset the additional first cost," officials say. It is manufactured at Scott's Mobile, Ala., mill by a new process developed by the company's research and engineering staffs.

Comparison tests which showed Expanda-Kraft superior to high grade multiwall kraft stock in break resistance were reported by officials.

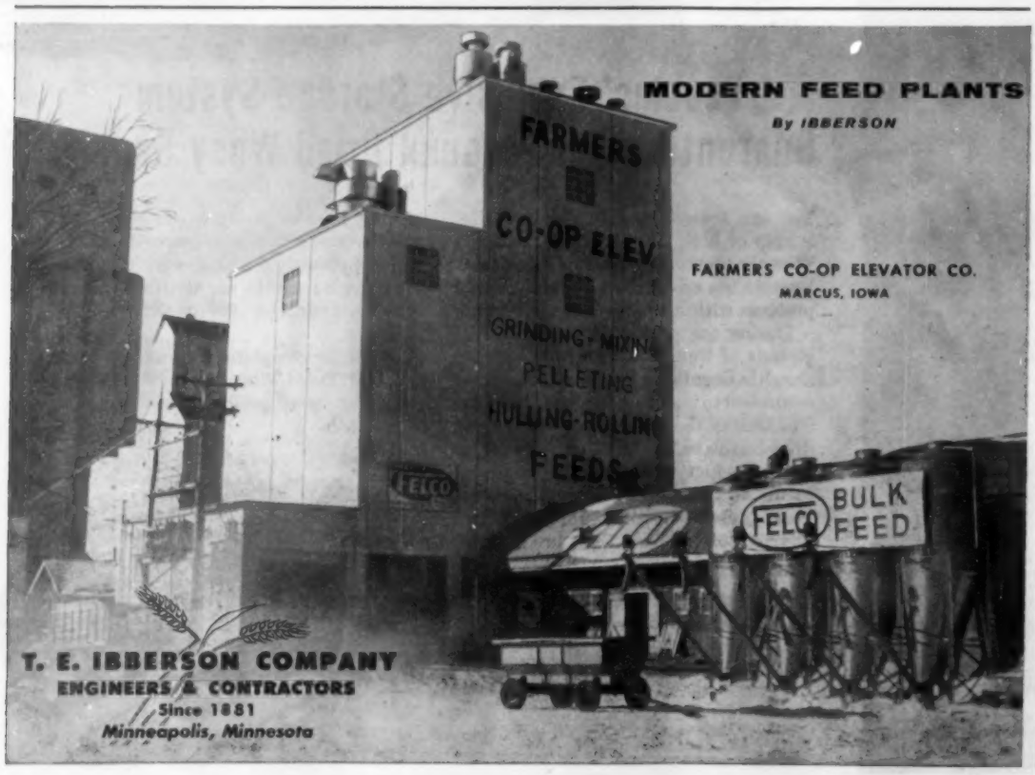
"Neither Scott nor the H&W division manufactures multiwall bags," says G. Willing Pepper, vice president of Scott's Industrial Products Group. "Our paper is marketed to converters who are in the business of making bags and other end products which they sell to users."

Speakers Set for Cottonseed Meeting

MEMPHIS, TENN. — Georgia congressman Phil M. Landrum, co-author of the Landrum-Griffin union reform bill, will be a featured speaker of the National Cottonseed Products Assn.'s 64th annual convention, May 15 to 17, at New Orleans, La.

His talk before the NCPA on the morning of May 16 will be on: "Who Makes Our National Labor Relations Policy?"

Other convention speakers will include Ed Lipscomb, director of public relations and sales promotion for the National Cotton Council; Fred Smith, president of Fred Smith Associates, management consultants, and Thurman Sensing, executive vice president of the Southern States Industrial Council.



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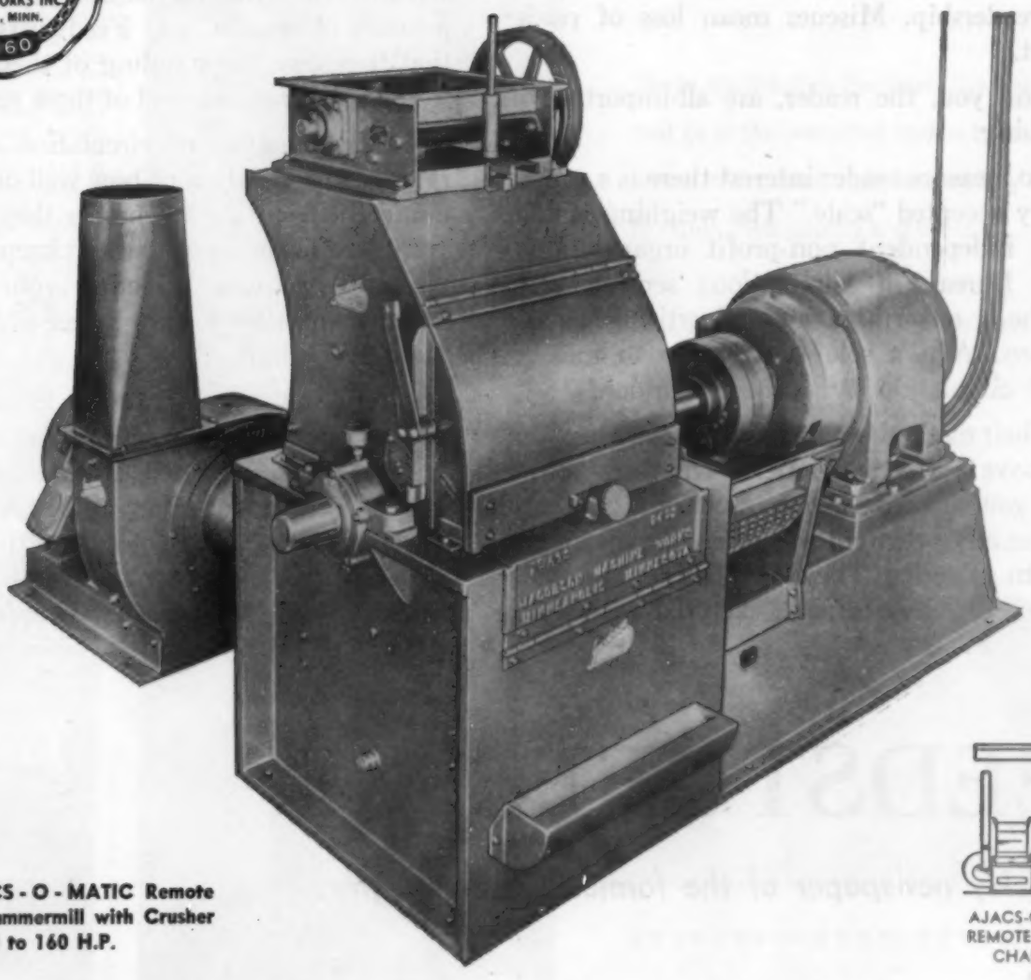

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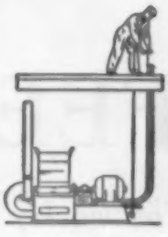

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'Low Prices Won't Cause Farmers to Up Production'

ITHACA, N.Y.—"The population explosion won't solve the farm surplus problem, declining prices don't cause farmers to step up production, and the American marketing system isn't the efficient machine many persons think it is."

These opinions were presented recently by Prof. G. W. Hedlund of Cornell University in a Farm and Home Week address.

Prof. Hedlund also denounced the belief that New York state markets should be reserved for New York producers, and that buyers really don't care how much they pay for products as long as it's no more than others pay.

Stressing the importance of marketing to the nation's economy, Prof. Hedlund pointed out that the cost of marketing farm products is 63% greater than the cost of producing them.

"During recent years we have begun to recognize the importance of marketing," he stated. "This is a change. Our need now is for more knowledge and understanding to the end that farm products will be marketed as efficiently as is possible."

Prof. Hedlund hit the idea that the population explosion will create so much demand that production will be a bigger problem than marketing. "In the U.S., we always have had a growing population and during part of our history it grew more rapidly than today," he explained. "Yet the Malthusian law has never operated in the U.S. Production during recent years has expanded more rapidly than population and promises to do so for the immediate future. And, if prices improved, production could be expanded even more rapidly."

Prof. Hedlund also said declining prices do not necessarily cause farmers to increase production in order to maintain their income, noting that an upward trend in production has made this untrue.

"I suspect that there are cases where specialized farmers with few or no alternatives may tend to increase production when prices fall," he said. "At the same time, however, other farmers are shifting out of this product because of the lower prices while still others are quitting farming entirely. These farmers tend to offset those who increase production.

"In a market economy, the surest cure for low prices is low prices and the surest deterrent to high prices is high prices."

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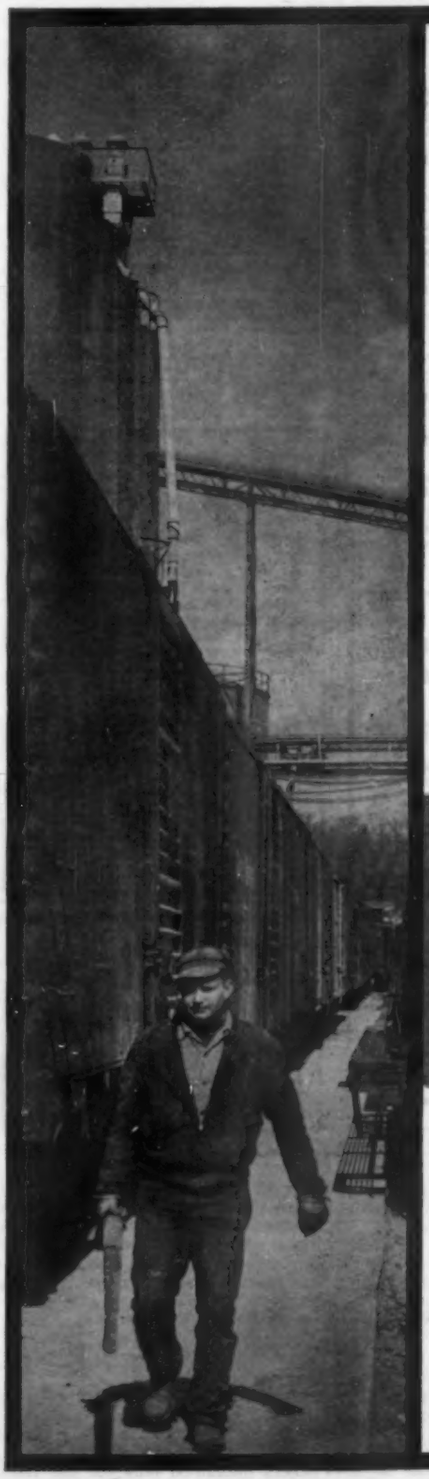

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Research Tests Use Of Hormone Implants

COLLEGE STATION, TEXAS—The use of hormone implants on stocker steers which are later to be fed in drylot may or may not be profitable, according to experimental trials conducted in 1959 at the Blacklands Experiment Station.

A major consideration is future ownership of the cattle. If the same owner has the cattle through both pasture and drylot feeding periods, he will realize an increase in gain by implanting for both pasture and drylot, points out U. D. Thompson, extension animal husbandman.

On the other hand, he says, the buyer of pasture implanted steers may expect slightly less gain from them than from non-implanted steers provided both are implanted for drylot feeding. The question then becomes one of price for the two kinds since both price and gain determine respective profits. Some buyer resistance to pasture implanted feeder steers has been noted.

Other results of the trials showed that steers implanted at the beginning of the drylot feeding period made slightly more gain than steers implanted for both the pasture and drylot. Also, steers receiving pasture implants 148 days in advance of drylot feeding and those receiving no implants either on pasture or in drylot made equal feedlot gains. However this gain was less than for steers which received both pasture and drylot implants.

Mr. Thompson said these results indicate that the effect of the 36 milligram implant did not continue beyond the 148-day pasture period. Steers implanted only for the feedlot period did have a small advantage in gain over the pasture implants only.

Stilbestrol implantation, whether for pasture or drylot only, or for both pasture and drylot increased gain significantly. Also, steers implanted only at the start of the pasture period had the most desirable carcass grade and those implanted only for the feedlot period the least desirable.

Present information indicates that the question of whether to implant should be determined on an individual basis, Mr. Thompson concluded.

Cellophane-Wrapped Egg Cartons Used

HOUSTON, TEXAS—The Lone Star-Robinhood Egg Co. is "the only company in the world marketing its eggs in cellophane-wrapped egg packages," according to Jack Denny, branch manager of the concern in Houston.

Lone Star-Robinhood Egg Co. is a division of the Texas Farm Products Co., Nacogdoches. The latter firm is headed by Steele Wright, Nacogdoches.

The packages are cellophane-wrapped by an automatic machine which costs several thousand dollars, according to an article in the Texas Poultry Industry.

The new marketing technique also was pointed up by an article in the New York Times. This article noted that the cellophane wrapping slows down the deterioration of the egg by air. The wrapping prevents loss of moisture and carbon dioxide which preserves the eggs and also keeps noxious odors from permeating the eggs.

Cattlemen Set Meeting

SAN FRANCISCO, CAL.—Current government research into problems affecting the cattle feeding industry will be discussed by Dr. Byron T. Shaw at the seventh annual meeting of the California Cattle Feeders Assn., according to George N. Tucker, association manager-secretary. The meeting will be held April 30 at the Hacienda in Fresno.

Dr. Shaw is administrator of the Agricultural Research Service, U.S. Department of Agriculture.

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Colorado Feeders Find Trace Mineralized Salt Cuts Cattle Feed Cost

GREELEY, COLO.—All of the cattle in the yards of Monfort Feedlots, Inc., near Greeley are being fed a ration containing trace mineralized mixing salt rather than plain salt because the firm's operators have demonstrated in their own tests that feed costs were less for each pound of gain when trace mineralized salt was included in cattle feed, it was announced recently.

Kenneth Monfort, who with his father, Warren, operates the 110-acre enterprise which pays the feed bill for 50-60 thousand head of cattle each year, reports that the corporation's records indicate that feeding trace mineralized salt instead of plain salt produced a saving of $1.34 per cwt. of gain. He says this saving can also be expressed as 6.71% in feed cost per cwt. of gain for test cattle fed trace mineralized salt as compared with control cattle fed plain salt. The extra cost of feeding trace mineralized salt was less than 17¢ per head in a 109-day experiment, Kenneth Monfort reports.

The Monfort feeding trial involved 294 Angus heifers. All of the cattle in the trial were fed this average daily ration: About 9 lb. of silage (green chop and corn silage out of a pit), 16 lb. grain made up of about 10 lb. dried beet pulp, 35% corn and 55% milo, 1½ lb. dehy alfalfa, 1 lb. shorts pellets with stilbestrol and 1.5 oz. salt scattered over the feed.

The 146 head of cattle in the control group received plain salt over the feed and free choice, while the test group of 148 head was fed Morton trace mineralized salt over the feed and free choice.

The Monforts report that the average daily gain for the control cattle was 2.14 lb., while the cattle fed trace mineralized salt gained an average of 2.22 lb. Total gain for the 109 days was 233.55 lb. on the control cattle and 242.81 lb. on the test cattle.

Monfort records show that gains cost $19.97 cwt. for the controls and $18.63 for the test animals, a difference of $1.34 cwt. in favor of cattle fed trace mineralized salt. All cattle in the test were sold for 25¢ lb. after having been in the feedlot for about 150 days.

Trace mineralized salt, now fed the 30,000 head the Monfort operation keeps on feed most of the time, is spread aver silage in each 4-ton mixer-unloading truck before other ingredients are added.

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Whitmoyer Selects Poultry Lab Director

MYERSTOWN, PA.—Dr. William J. Mathey, Jr., formerly of Ithaca, N.Y., is the new director of the poultry diagnostic laboratory at Whitmoyer Laboratories, Inc.

Dr. W. J. Mathey, Jr.

Prior to joining the Whitmoyer staff, Dr. Mathey was in poultry extension work at Cornell University. He also has had considerable experience in poultry and livestock work in both the commercial field and at other colleges.

Dr. Mathey did his undergraduate work at Notre Dame, earned his D.V.M. at the University of Pennsylvania Veterinary School and, following World War II service, continued his studies at the University of California, where he received his Ph.D in comparative pathology.

C. W. Whitmoyer, president of Whitmoyer Laboratories, stated that his firm believes Dr. Mathey's "background of training and practical experience will enable him to be of real service to the poultry and feed industry in helping them overcome poultry health problems."

Mill Being Built

ROCKFORD, IDAHO — Construction is underway for a feed and grain mill here. The plant will be located on a site just north of a warehouse that is used for a fertilizer plant north of the railroad.

Modern Mills, Inc., is the builder of the mill which is expected to be valued in excess of $200,000, announces Dean Williams, one of the eight men of the corporation. Other members are George Peterson, Elwin Murdock, Lyle Peterson, Alma Merrill, J. E. Merrill, Arnold Dance and Herb Hahn.

Work is expected to be completed by July 1 so that it can be used for the fall harvest.

WINDS KILL CHICKENS

NORMAN, ARK.—Winds of tornado force destroyed several chicken houses and thousands of chicks near here recently, causing damage estimated at several thousand dollars. Chicken houses owned by the Robins Poultry Company, C. C. Stroope and Russell Harbour were either damaged or destroyed by the twister, officials reported.

SCIENTISTS

(Continued from page 11)

Perry: This is another in a series of trials on a long-term research program to design a new satisfactory and complete beef cattle supplement, high in urea, which can be fed at the rate of 1 lb. per head daily. Therefore, the objectives of this research were: (A) To compare a 32% protein supplement fed at 2 lb. per day with a 64% protein supplement fed at 1 lb. per day for balancing fattening rations for beef cattle; (B) to determine the effect of adding the amino acids, lysine and methionine, to a 32% and a 64% (14.8% urea) supplement, and (C) to determine the effect of feeding 80 mg. of zinc bacitracin daily to steers being fed on the various supplements.

Summary:

1. The addition of lysine and methionine to Purdue Supplement A failed to increase average daily gain or feed efficiency. This would indicate that neither lysine nor methionine are limiting amino acids in supplements made up with natural proteins.

2. The addition of lysine to a 64% supplement did give a slight increase in average daily gain and feed efficiency. This is in agreement with results reported in another Purdue study. The addition of methionine to a 64% supplement gave a slight decrease in average daily gain and a slight increase in feed efficiency. However, the addition of both lysine and methionine to a 64% supplement gave a depression in rate of gain and feed efficiency.

3. A 64% supplement fed at 1 lb. per head daily failed to give as good results as a 32% supplement fed at 2 lb. per head daily. Average daily gain was significantly less on the 64% supplement (2.51 vs. 2.27) and feed required per 100 lb. of gain was greater.

4. The feeding of 80 mg. of zinc bacitracin per head daily failed to stimulate over-all average daily gain (2.34 vs. 2.36) or improve over-all feed efficiency (793 vs. 795).

Differences are indicated when zinc bacitracin is included in a 64% supplement with amino acids. Lysine and zinc bacitracin appear to improve rate of gain and feed efficiency when added in combination (synergistic), and methionine and zinc bacitracin appear to decrease rate of gain and feed efficiency if added in combination (antagonistic).

The above mentioned relationships between zinc bacitracin and the two amino acids will require more research to substantiate this relationship.

Soybean Groups Plan Joint August Meetings

HUDSON, IOWA — Joint annual meetings of the American Soybean Assn. and the National Soybean Processors Assn. will be held at Hotel Peabody, Memphis, Tenn., Aug. 22-23, the program committees for the two associations have announced.

The conferences of the two associations will run at the same time this year, with joint afternoon sessions and separate morning sessions. A joint annual banquet will be held Aug. 22.

The final afternoon session of the joint conference on Aug. 23 will be devoted almost entirely to marketing soybeans and soybean products. There will be a price forecast by a well-known farm economist, accompanied by a panel discussion on marketing factors that affect prices.

Firms serving the soybean industry will have exhibits of products and services.

Dracco Names Dust Collector Sales Head

CLEVELAND, OHIO — Robert T. Pring has been appointed to the newly created post of manager, dust collector sales, at Dracco division of Fuller Co., manufacturer of dust control and pneumatic conveying systems.

R. T. Pring

An experienced industrial hygienist and consultant as well as a registered professional engineer, he will direct sales and marketing activities for Dracco's line of dry dust collection equipment and systems.

Prior to joining Dracco on March 1, Mr. Pring had spent 10 years as technical director of a major dust collector manufacturer. Previously, he had been director of the industrial hygiene department of Kennecott Copper Corp.

A 1933 chemical engineering graduate of Tufts College, Mr. Pring completed a graduate course in industrial hygiene at Harvard School of Public Health.

He is former chairman of the dust and fume product group of the Foundry Equipment Manufacturers Assn. and has served on American Standards Assn. committees on exhaust ventilation and rating of dust collectors and the preventive engineering committee of the Industrial Hygiene Foundation.

F. K. Hoover Promoted At Morton Chemical

CHICAGO — Morton Chemical Co. has named Frank K. Hoover to be Chicago district sales manager for industrial chemicals.

Mr. Hoover fills the position formerly held by Wayne Micheel, who recently became product manager for organic chemicals.

As sales manager of the Chicago district, Mr. Hoover will supervise the Morton Chemical sales force in nine midwestern states. His appointment was announced by Thomas C. Dabovich, vice president of Morton Chemical.

Mr. Hoover joined Morton last February. He had been with the Chicago office of Amoco Chemical Corp. as a product supervisor.

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SWINE FEEDING AND NUTRITION (1957)

By T. J. Cunha, Department of Animal Husbandry and Nutrition, University of Florida

A new text for feeders, teachers of animal husbandry and their classes, county agents, nutritionists and workers in veterinary pharmaceuticals. Dr. Cunha is head of the Department of Animal Husbandry, a member of the Nutrition Committee of the American Society of Animal Production and the Swine Nutrient Requirements Committee of the National Research Council. The book includes reports on the most recent scientific feeding studies on swine. 300 pages, 47 tables, 46 illustrations **$5.00**

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By M. E. Ensminger, M.S., M.A., Ph.D.

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STORAGE

(Continued from page 7)

minal) receiving exorbitant or excessive storage and handling charges.

"The huge cost," he explained, "is caused by the mountainous grain surplus resulting from laws put into effect by Congress and the presidents, along with a scientific and engineering revolution in grain production."

He charged that the use of a yearly figure is "erroneous, misleading and a political football."

Mr. McMillan noted that during the year an elevator may be 100% full or empty. "My company's 35 country elevators have been only 52.4% filled on the average for the last four years," he added. "An annual rate does not exist."

Mr. McMillan also questioned the alteration of wording of the "rejected shipment" paragraph of the new proposed agreement, saying that "many, if not all, country warehousemen can be forced out of business at the whim or poor judgment of a CCC area director or any of his assistants."

He also protested the cut in the premium discount account, the food and drug paragraph and the elimination of protection on broken kernels of corn and soybeans where the breaking causes "foreign material."

Sen. Humphrey emphasized that he has "never believed that the government should own agriculture. I have never believed that the CCC should supplant the grain trade. Its purpose is to supplement, not to supplant.

"I think you can sell better than anyone we can hire—unless we hire you," he added. "I want a program that works and uses established machinery."

He stated that he believed storage is the real key to orderly marketing.

"Although we want no abuses or excessive profiteering, I have never been against making a profit," he said. Sen. Humphrey added that he didn't believe that everyone should be blamed for the actions of a few.

"Sometimes it's awfully good not to condemn before all the evidence is in," said the senator.

MERGER

(Continued from page 1)

vice president. A. H. Seed will be secretary and treasurer. He has been with Superior Separator since 1948.

Announcement of the merger was made following meetings of the boards of directors of the Superior and Daffin companies. The merger is subject to approval of stockholders at meetings in May.

The merger links what are described as two rapidly growing manufacturers of equipment for the feed industry throughout the U.S. and Canada.

The two manufacturers of products and systems for industry and agriculture will start with combined annual sales of approximately $20 million, representing an increase of more than 400% in the past 10 years.

Daffin Manufacturing is said to be the largest manufacturer of mobile feed mills. In three Lancaster plants, the firm also builds a line of "packaged" stationary feed plants, pelleting machines and other equipment systems and precision batch mixers.

Superior Separator, in business for more than 30 years, builds machinery for the grain, feed, seed, flour and other industries. Air conveying systems and farm implements are manufactured by divisions of the company.

Divisions

The merger announcement said that operations of the new corporation will be conducted on a divisional basis which will include:

• The Daffin Manufacturing Co., manufacturer of mobile and packaged stationary feed plants, pelleting machines, pneumatic handling

I. A. Daffin

C. F. Pierson

equipment and precision batch mixers for the feed, chemical and allied industries.

• The Farmhand Co., maker of integrated machine systems for feeding, hay harvesting, beet harvesting, soil preparation and materials handling.

• The Superior Co., which makes grain, seed and feed machinery for elevators, seed and malt houses and feed mills.

• The Fluidizer Co., manufacturer of air conveying systems for the food, feed, drug and chemical industries.

Plants are located in Hopkins, Lancaster and Bend, Ore.

"Our companies," said Mr. Daffin and Mr. Pierson, "have been developed under similar programs of continuing research, quality manufacturing standards and sound merchandising policies. Together, we expect to promote these programs even more aggressively and look for the past growth we have enjoyed to continue at an even more accelerated pace."

Mr. Daffin was formerly president of the New Holland Machine Co. prior to its sale to the Sperry Gyroscope Co. (now Sperry-Rand) and the formation of his own company. Mr. Pierson joined Superior Separator in 1938 and has been president since 1947. Mr. Watts, financial vice president of the new firm, joined Daffin in 1957 and has a background with industrial and financial institutions.

The new company will distribute its products throughout the U.S. and Canada and plans to expand still further its export activities, particularly in South America and the European Common Market.

Directors

Directors of the combined companies will include: Mr. Daffin; E. B. Kapp, partner, Lehman Bros., New York; A. A. Kole, vice president, Superior Separator Co., Hopkins; Mr. Pierson; H. C. Piper, Jr., partner, Piper, Jaffray & Hopwood, Minneapolis; S. H. Rogers, vice president, Northwestern National Bank of Minneapolis, and Mr. Watts.

"The proposed merger will strengthen both our agricultural and industrial business," said Mr. Daffin, "as many lines are complementary and will fill out our systems concept. We are interested in integrated systems and components which meet the growing need for efficiency and labor cost reduction on America's production type farms, and the processing and handling industries which bring farm products to the customer."

"In addition to this," said Mr. Pierson, "we both have been expanding our business in the high technology fields such as the chemical processing industries where our systems are finding good acceptance. We hope to expand further in the industrial area.

"Farm trends, industrial trends, and increased foreign markets make us extremely optimistic for our new company."

FIRM INCORPORATED

PHOENIX, ARIZ. — Agriculture Management Corp., with principal place of business to be here, has filed articles of incorporation listing $500,000 capitalization to engage in the manufacture and sale of poultry and domestic animal feeds, hay, grain and all kinds of supplies and equipment. Incorporators are Lester Engler, Phoenix, president, and Richard J. Hertzberg, secretary-treasurer.

Poults Hatched and Turkey Eggs in Incubators

Geographic divisions	White heavy breeds 1959	White heavy breeds 1960	Other heavy breeds 1959	Other heavy breeds 1960	Total heavy breeds 1959	Total heavy breeds 1960	light breeds 1959	light breeds 1960
				(000's omitted)				
Poults hatched during March								
New England	36	55	9	5	45	60	1	1
Middle Atlantic	63	80	123	124	186	204	4	12
East North Central	311	547	886	1,049	1,197	1,596	178	79
West North Central	1,105	1,373	3,819	4,549	4,924	5,922	429	278
South Atlantic	82	217	444	442	526	659	799	418
South Central	185	218	718	1,092	903	1,305	181	34
West	182	155	3,308	3,639	3,490	3,794	177	136
United States	1,964	2,640	9,307	10,900	11,271	13,540	1,769	958
Turkeys eggs in incubators April 1								
New England	200	227	39	49	239	276	2	2
Middle Atlantic	317	262	337	265	654	527	25	35
East North Central	949	1,320	2,587	2,320	3,536	3,640	351	181
West North Central	2,424	2,376	8,094	8,110	10,518	10,486	444	456
South Atlantic	292	375	1,343	999	1,635	1,374	1,410	674
South Central	344	544	2,366	1,909	2,730	2,453	379	103
West	221	246	6,423	6,376	6,644	6,622	283	218
United States	4,767	5,350	21,189	20,028	25,956	25,378	3,114	1,669

POULTS

(Continued from page 4)

hatched during the first three months of 1960 was 29% larger than a year earlier. Hatch of heavy white breed poults was up 27% and other heavy breeds was up 30%. Production of light breed poults during January through March, 1960, was down 51% from the same period in 1959.

Number of heavy white breed turkey eggs in incubators on April 1 was up by 583,000 at 5,350,000, compared with 4,767,000 a year ago. However, the number of other heavy breed eggs in incubators was 1,161,000 less than the previous year at 20,028,000, compared with 21,189,000 on April 1, 1959, for a total heavy breed decline of 578,000 eggs from 1959. Total number of heavy breed eggs in incubators April 1, 1960, was 25,378,000 compared with 25,956,000 the previous year.

Number of light breed eggs in incubators on April 1 was off considerably from 1959 at 1,669,000, as compared with 3,114,000 a year earlier.

ELEVATOR BURNED

EVERLY, IOWA — The Huntting grain elevator here was destroyed by fire recently, with a total loss of $135,000 to building and contents.

TOP OF THE HOPPER

(Continued from page 2)

tinued until there was a real price disaster," he said. "The downturn of prices has come well before the time when cattle numbers have built up to disaster levels. We do not face in the immediate future anything like the 35% increase in beef production that caused the disastrous price break between 1952 and 1954. If producers will continue to be cautious we might avoid for a long time any buildup seriously in excess of both the rate of population growth and further increases in demand."

Dr. DeGraff predicted beef consumption could increase in the next decade to 150% of average consumption in the past several years "if the industry makes beef good enough."

COOPERATION AMONG COOPERATIVES is urged by Farm Journal in a current editorial. "Farmers must team up for strength," the publication says, if they are to hold their place in bargaining for better product prices. Several successful efforts of co-ops to gain firmer marketing positions through federation of several individual co-ops are cited by the Journal.

TRENDS IN THE DESIGN AND OPERATION of feed plants in the midwestern grain and feeding country were the subject of some comments the other day by an authority on mill design and building. He said he felt much emphasis would be on mills serving feeders within a 25-mile radius. He looks for many plants to be all-bulk, push-button plants using premixes and locally obtained major ingredients.

"PEDDLERS OF ECONOMIC and political ideas are not regulated by law," writes L. H. Simerl of the department of agricultural economics, University of Illinois. "Their claims and proposals can be as phony as a $3 bill, and they often are." He advises: "Let the citizen beware lest he be sold a bill of goods which will not do what is claimed, and for which he must pay dearly in taxes or otherwise."

Mr. Simerl cites some examples of what he terms falacious claims—that farmers' income problems could be solved if they would just "get together" or "adjust production to demand." Concerning the latter, he points out that economists seldom make such a statement since it is too vague to be of much use in serious economic discussion. By "supply and demand" most people probably mean production and consumption, he says. "But any supply can be sold at some price—sometimes low, sometimes high."

"Many farm families have very serious income problems," he says. "We believe that the Congress should adopt a program to help these families to earn adequate incomes. But we doubt that most farm families can secure satisfactory incomes simply by 'getting together' or 'adjusting supply to demand'."

AN INSTRUMENT which measures tenderness of beef by hydraulic pressure has been developed by the U.S. Department of Agriculture. This will be valuable, USDA says, in testing raw meat right out in the slaughterhouse, and it also can be used to test biopsy samples from live animals to help guide geneticists.

Some earlier devices have been tried, including one fitted with synthetic human dentures to simulate chewing. One could create some unusual interest with that one, clacking away in a restaurant on a sample from a steak before accepting the word of the waiter.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bulk, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Boston: Demand fair; supply ample; 400 D, 3,000 A 21⅛¢ lb.; 300 D, 2,000 A 21¢; 300 D, 2,250 A 19⅛¢; 300 D, 1,500 A 18¢; 300 D, 750 A 16¢; 75 D, 750 A 15⅛¢.

Minneapolis: Demand fair; supply ample; 10,000 A 34⅛¢ lb.; 300 D, 2,250 A 18⅝¢ lb.; 300 D, 1,500 A 17⅛¢ lb.; 300 D 750 A 16¢ lb.

Chicago: Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7¼¢ a million units of vitamin A, L.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

New York: Demand fair; trend steady; supply ample; 1,500 A, 300 D 16¢ lb.; 2,250 A, 300 D 17⅛¢ lb.

ALFALFA MEAL

Boston: Demand good; supply fair; dehydrated 17%, $70; suncured 13%, $47.

Memphis: Demand light; supply ample; trend down; dehydrated, 17% protein, guaranteed 100,000 units, vitamin A, $61.70.

Los Angeles: Demand fair; supply ample; trend unchanged; dehydrated meal 17% protein, 100,000 A $51@53; dehydrated pellet meal 17% protein, 100,000 A $53@55; suncured meal 15% protein $49@50; suncured crumbles 15% protein $51@52.

St. Louis: Demand slow; trend easy; supply adequate; suncured, 13% fine, sacked $47; dehydrated, 17%, 100,000 A, pellets, demand slow, trend easy, supply ample, bulk $57.

Ft. Worth: Demand fair; supply sufficient on dehydrated, limited on suncured for immediate shipment; sacked: Dehydrated 17% 100,000 A $58@59, rail or truck; 20% protein 150,000 A $60@61 trucks; suncured 13% ¼ in. grind No. 1 $47 truck; 15% fine ground dry $49; with 2% fat added $51 rail or truck.

Philadelphia: Demand dull; supply fair; 17% dehy, 10,000 A's, $70.50.

New Orleans: Demand fair; supply adequate; trend steady; 17% protein 100,000 vitamin A $63@64, bulk; $66@67, sacked.

Cincinnati: Demand fair; supply adequate; trend steady; 17% dehydrated 100,000 vitamin A pellets, $64.

Chicago: Demand good; supply fair; trend higher; 17% protein, dehydrated, 100,000 units vitamin A, $59.50; 15% protein, suncured, $49.50.

Omaha: Demand fair; supply tight; trend strong; 17% dehydrated 100,000 A units, bulk pellets, $52; sacked meal, $57, Omaha basis.

Kansas City: Demand improved; supply adequate; trend steady; 17% dehydrated alfalfa, guaranteed 100,000 A on arrival, pellets $52 bulk, reground pellets $53 bulk; 18% dehydrated alfalfa, guaranteed 125,000 A arrival, reground pellets $56 bulk; 20% dehydrated alfalfa, guaranteed 150,000 on arrival, reground pellets $63; suncured alfalfa, demand slow, supplies ample, 13% pellets $36.50@37 bulk; No. 1 ¼-in. $37.50, sacked.

Minneapolis: Market remains steady, 17% dehydrated, 100,000 units vitamin A reground pellets $58, oiled reground pellets $60.

Buffalo: Demand and supply fair; trend steady; $71, sacked, Boston.

Seattle: Demand fair; trend steady; supply good; $51, delivered truck loads, sacked 15% protein suncured; $74, delivered truck loads, sacked 136,000 A unit dehydrated.

ANIMAL FATS (STABILIZED)

Chicago: Demand good; supply fair; trend steady; cwt., tank truck or carlot, bleachable fancy tallow, $6.12½; yellow grease, $5.50.

New Orleans: Demand fair; supply adequate; trend easy; 5⅝@6⅛¢ lb., tank cars.

San Francisco: Demand fair; supply ample; bleachable fancy 6⅝¢ lb., yellow grease 5⅝¢ lb.

Ogden: Supply good; $6 cwt., bulk.

Ft. Worth: Demand good; supply limited; prime tallow, tank cars, 6⅛¢; drums 8⅛¢, f.o.b. north Texas packing plants with returnable drums.

Louisville: Demand good; supply fair; trend strong; bleachable white, 6⅛¢ lb.; white tallow, 6⅛¢ lb.; yellow grease, 5⅝¢ lb.

Boston: Demand and supply steady; tallow, 6⅛¢ lb.; yellow grease, 5⅝¢.

Kansas City: Demand fair; supply ample; trend firm; stabilized prime tallow, 5⅝@6⅛¢ lb.

St. Paul: Demand good; supply ample; downward trend expected to firm up; bleachable fancy down ⅛¢ to 5⅝¢ lb., f.o.b. producer's plant.

BARLEY FEED

Baltimore: Demand fair; supply ample; trend easier; $46.50, sacked.

San Francisco: Demand fair; supply ample; rolled, $60; ground, $59.

New Orleans: Demand slow; supply adequate; trend unchanged; $51@52, sacked.

Ogden: Supply good; rolled, $44@45 (whole barley, $39@40).

Chicago: Demand moderate; supply fair; trend easier; $36, sacked.

Boston: Demand fair; supply adequate; sacked, $48.

Los Angeles: Demand fair; supply adequate; trend unchanged; standard rolled, $2.85 cwt., sacked; standard ground, $2.85 cwt., sacked.

Philadelphia: Demand slow; supply fair; $48.

Seattle: Demand fair; trend steady; supply good; $45, truck lots.

BENTONITE (SODIUM)

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30-ton carlots: 80 granular $31.50, less than carlots $40; 200 mesh fine $31, less than carlots $40.

Chicago: Demand fair; trend steady; supply ample; f.o.b. Wyoming and South Dakota shipping points: granular, 30 mesh $16.50, fine granular, 80-100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots, 80 granular $13.50 net; 200 mesh, fine $13.25, net.

BLOOD FLOUR

Louisville: Demand fair; supply good; trend steady; $82.50@87.50, sacked.

BLOOD MEAL

Ogden: Supply good; $90 in 100 lb. bags, f.o.b. Ogden.

San Francisco: Demand and supply fair; $6 per unit of ammonia, sacked.

New Orleans: Demand slow; supply ample; trend steady; $82.50@87.50, sacked.

Chicago: Demand quiet; supply ample; trend easier; 80% protein, 100 lb. bags, $125.

Louisville: Demand fair; supply good; trend firm; $82.50@87.50, sacked.

Los Angeles: Demand good; supply sufficient; trend unchanged; $6.75 per unit of ammonia, sacked.

Omaha: Demand good; supply short; trend strong; 80% $105, Omaha.

BONE MEAL (STEAMED)

Chicago: Demand and supply fair; trend steady; 100 lb. bags, $102.50.

Cincinnati: Demand fair; trend easy; supply ample; $100, sacked, Cincinnati.

San Francisco: Demand good; supply ample; $75, sacked.

New Orleans: Demand slow; trend easy; supply ample; $90@100, sacked.

Ft. Worth: Demand good; supply extremely light; $100, sacked, f.o.b. Ft. Worth local manufacture.

Louisville: Demand slow; trend steady; supply light; $90@100, sacked.

Los Angeles: Demand fair; trend unchanged; supply adequate; imported $80, 20-ton lots, sacked.

Boston: Demand and supply light; $105.

Buffalo: Demand good; trend steady; supply limited; $105, sacked.

Seattle: Demand good; trend firm; supply limited; $92 ex dock, sacked.

BREWERS DRIED GRAINS

Boston: Demand active; supply tight; 26%, $51.

Milwaukee: Demand good; trend firm; supply limited; $39.50, Chicago.

Cincinnati: Demand good; trend higher; supply fair; $45.

San Francisco: Demand fair; supply ample; $54, sacked.

Chicago: Demand and supply fair; trend steady; 26% protein, $37.50@39.

New Orleans: Demand fair; trend easy; supply good; $48@49, sacked.

St. Louis: Demand fair; trend steady; supply ample; $40.

Ft. Worth: Demand slow; supply sufficient; 26% protein, $48, prompt.

Philadelphia: Demand and supply fair; $50.

Louisville: Demand fair; trend steady; supply ample; $47, sacked.

Los Angeles: Demand fair; supply limited; trend unchanged; $49.50.

New York: Demand good; trend steady; supply satisfactory; $49.50 bulk; $55 sacked, Boston.

Buffalo: Demand and supply fair; trend steady-to-lower; $50.50, Boston.

BREWERS DRIED YEAST

Louisville: Demand slow; trend steady; supply good; 10@10⅛¢ lb., sacked.

Cincinnati: Carlots 11¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅛¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅛¢ lb., all sacked.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11⅛¢ lb., all sacked.

New York: Carlots 9⅛¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10⅛¢ lb.; ton lots 11¢ lb., all sacked, f.o.b. New Jersey.

Chicago: Demand fair; trend steady; supply ample; 9⅛@10¢ lb., carlots, sacked; 9⅜@12¼¢ lb., l.c.l.

Milwaukee: Demand fair; trend steady; supply ample; 10⅛@12⅛¢ lb., ton lots, sacked.

St. Louis: Demand fair; trend firm; supply ample; 9⅛@10¢ lb., carlots, sacked; 10⅛¢ lb., ton lots; 11⅛¢ lb., less than ton lots.

San Francisco: Demand fair; supply good; 10¢ lb., sacked.

Omaha: 10⅛¢ lb.

Los Angeles: Demand fair; trend unchanged; supply limited; 10¢ lb. 5-ton lots, sacked; 11¢ lb. 1-ton lots, sacked; 13¢ lb. less than ton lots, sacked.

Boston: Demand steady; supply ample; 11¢ lb., f.o.b. shipping point.

Buffalo: Demand fair; trend steady; supply ample; $9.35 cwt.

Seattle: Demand slow; trend steady; supply ample; $12 cwt., sacked.

BUTTERMILK (CONDENSED)

Boston: Demand and supply steady; 3.95¢ lb.

Louisville: Demand and supply zero; trend steady; $4.25 cwt. in paper drums if desired.

New Orleans: Demand slow; supply adequate; trend unchanged; $4.20@4.25 cwt., drums.

Ogden: Supply ample; $4.40, 100 lb. drum.

San Francisco: Demand fair; supply good; $5 drums.

Chicago: Demand fair; supply ample; trend steady; 500 lb. bbl., $3.30@3.75 cwt.

Los Angeles: Demand fair; supply adequate; trend unchanged; 5⅝¢ lb., 100 lb. lots in barrels; 4⅛¢ lb., 500 lb. lots in barrels.

Philadelphia: Demand slow; supply fair; $4.25.

CALCITE CRYSTALS AND FLOUR

(All prices net, sacked, including freight)

New York: Crystals $16.28, flour $10.28.
Buffalo: Crystals $17.11, flour $11.11.
Toledo: Crystals $18.96, flour $12.96.
Boston: Crystals $17.63, flour $11.63.
Lime Crest, N.J.: Crystals $11.50, flour $5.50.

CALCIUM CARBONATE

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100 lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.94; granular grind $1 premium.

Minneapolis: Fine grind, 50 lb. bags $12.25, 100 lb. bags $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

Cincinnati: Demand fair; trend steady; supply adequate; $7@7.50 cwt.

Los Angeles: Demand fair; trend unchanged; supply adequate; flour $10.15, 20-ton cars, sacked; meal $11.15, 20-ton cars, sacked.

Seattle: Demand and trend steady; supply good; $14 ex. warehouse, sacked.

Minneapolis: Fine grind, 50 lb. bags, $12.75; 100 lb. bags, $12; bulk, boxcar, $10.50; bulk, hopper, $10; coarse grind $1 premium, delivered Minneapolis.

CHARCOAL

Los Angeles: Demand slow; supply adequate; trend unchanged; hardwood poultry, $156, less than ton lots, sacked; $144.40, ton lots, sacked.

Chicago: Demand fair; trend firm; supply fair; 50 lb. multiwalls $110.

San Francisco: Demand steady; supply ample; $141, sacked.

Boston: Demand and supply steady; $110.

COCONUT OIL MEAL

San Francisco: Demand good; supply tight; solvent, $69.50.

Los Angeles: Demand slow; supply adequate; trend weaker; copra cake, $73@74.

Seattle: Demand fair; trend easy; supply ample; $79 delivered via truck, sacked.

COD LIVER OIL (FORTIFIED)

Boston: Demand fair; supply ample; 600 D, 2,250 A, 20½¢; 300 D, 3,000 A, 22¢; 300 D, 2,250 A, 20¢; 600 D, 1,500 A, 19¢; 300 D, 1,500 A, 18½¢.

New York: Demand fair; trend steady; supply satisfactory; 1,500 A, 300 D 16½¢ lb.; 3,000 A, 300 D 20¢ lb.

CONDENSED FISH SOLUBLES

New Orleans: Demand light; trend easy; supply fair; $37.50@42.50, f.o.b. Gulf.

Los Angeles: Demand fair; trend unchanged; supply ample; 2¾¢ lb.

Boston: Demand fair; supply plentiful; 2¢ lb.

New York: Demand good; trend steady; supply ample; $46.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are bulk basis, sacked basis $5 more)

Minneapolis: Feed $48.60, meal $62.60.
Atlanta: Feed $49, meal $72.
Birmingham: Feed $47.60, meal $70.60.
Boston: Feed $50.50, meal $73.50.
Chicago: Feed $39, meal $62.
Cleveland: Feed $46.90, meal $69.90.
Denver: Feed $49.20, meal $72.20.
Ft. Worth: Feed $47.70, meal $70.70.
Indianapolis: Feed $44.20, meal $67.20.
Kansas City: Feed $39, meal $62.
Louisville: Feed $45.60, meal $68.60.
New Orleans: Feed $48.90, meal $71.90.
New York: Feed $50.10, meal $73.10.
Norfolk: Feed $49.50, meal $72.50.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $47.

Louisville: Trend strong; supply light; demand none; $54.45, sacked, up $1 ton.

COTTONSEED OIL MEAL

St. Louis: Demand slow; trend easy; supply ample; solvent, $56.50.

Omaha: Demand slow; trend easy; supply ample; 41% solvent, $61.20, delivered Omaha.

Kansas City: Demand slow; trend weak; supply plentiful; 41% old process, $53.50@54; solvent process, $53@53.50, Memphis.

Memphis: Demand slow; trend steady; supply ample; prime 41% protein, old process, $55; 41% solvent, $53.

Chicago: Demand fair; trend easier; supply ample; Memphis basis, hydraulic, $54.

Cincinnati: Demand fair; trend steady; supply adequate; $63.

Ogden: Supply ample; 41%, $70@72.

New Orleans: Demand slow; trend steady; supply ample; $67.50@68, bulk, $71@72, sacked.

San Francisco: Demand good; supply tight; 41%, $69; 44%, $72.50.

Wichita: Demand good; supply fair; 41% old process, $71, sacked.

Memphis: Demand slow; trend steady; supply ample; prime 44% solvent, $58.50, f.o.b., Memphis.

Los Angeles: Demand slow; supply adequate; trend unchanged; $69.50@70.50.

Boston: Demand fair; supply light; $76.70.

Louisville: Demand slow; supply normal; trend easy; old process, $64, off $1.50; new process, $64, off $1.50, both sacked.

Ft. Worth: Demand slow for meal, good for hulls; offerings sufficient except light on hulls; 41% old process, $63, f.o.b. mills, Ft. Worth; carlots, solvent, 2% fat added, $58.50, delivered Ft. Worth April; pellets $2 additional; hulls, $20.

Philadelphia: Demand dull; supply fair; $71.50.

Buffalo: Demand poor; trend lower; supply adequate; $75, sacked, Boston.

Seattle: Demand good; trend easy; supply ample; $75, delivered truck lots, 41% expeller process.

CURACAO PHOSPHATE

New York: $48 sacked, $46 bulk, f.o.b. New Orleans, Jacksonville or Philadelphia.

D-ACTIVATED ANIMAL STEROL (POWDERED)

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 10¢ lb., warehouse.

Kansas City: Demand fair; trend steady; supply ample; 1,500 ICU 9⅝¢ lb.; 3,000 ICU 11¢ lb.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Cincinnati: 18% phosphorus $81.02; 14% phosphorus $71.03, f.o.b. Cincinnati.

Butte, Mont.: Minimum phosphorus 18%, minimum calcium 32%, maximum calcium 36%, maximum fluorine .18%, $81 (or $4.50 per unit of P), f.o.b. Butte, 100 lb. multiwall bags; bulk $78; truck loads of less than 10 tons $10 more, bagged or bulk.

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 36%, maximum fluorine .19% $74.35 net ton, f.o.b. Houston, 100 lb. multiwall bags; $71.35, bulk.

Coronet, Fla.: Minimum phosphorus 18%, minimum calcium 31%, maximum calcium 34%, maximum fluorine .18%; guaranteed uniform analysis; carload $66.25, sacked, 100-lb. multiwall bags, bulk $63.25; truck load $67, sacked, in 100-lb. multiwall bags, bulk $64, f.o.b. Coronet, Fla.

Tupelo, Miss.: Minimum phosphorus 14%, minimum calcium 28%, maximum fluorine .14% $57.07, f.o.b. Tupelo in 100-lb. multiwall bags, $54.07 bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 32%, maximum 36%, maximum fluorine .18% $71.80 (or $3.99 per unit of P), f.o.b. Wales in 100 lb. multiwall bags, $3 less in bulk.

DICALCIUM PHOSPHATE

Cincinnati: 18½% phosphorus $92.15, f.o.b. Cincinnati.

Chicago: Bulk 18.5% phosphorus, carlots or trucks $83; 20,000 lb. or more $86 net ton in 100 lb. papers; less than 20,000 lb. $96, basis Chicago Heights, Ill., or Nashville, Tenn.; 21% phosphorus, carlots or trucks, bulk $94.65; 20,000 lb. or more, per net ton in 100 lb. papers, $97.65 and less than 20,000 lb., $107.65, basis Chicago Heights, Ill., or Nashville, Tenn.

Bonnie, Fla.: Minimum phosphorus 18½%, granular, $86 (or $4.65 unit of P), freight equalized from nearest producing point, carload basis; bulk carloads $3 less; in truck loads of less than 10 tons, $10 more. Western slope prices, for delivery at established railroad stations and by truck at regular feed mixing plants: California, Arizona, Nevada and Utah, $99.90; Washington, Oregon, Montana and Idaho, $107.15; bulk carloads $3 less; truck loads less than 10 tons, $10 more.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum calcium 24% $86, f.o.b. Columbia, in 100 lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Texas City, Texas: Minimum phosphorus 18.5%, minimum calcium 30%, maximum calcium 33%, maximum fluorine .12%; carload and truck load $80.50, sacked, in 100 lb. multiwall bags, bulk $77.50, f.o.b. Texas City.

Trenton, Mich.: 18½% P $83, bulk, boxcar/hopper car; $86, bagged, in carloads or truck loads; $96, bagged, in less than carload lots; 21% P, $94.65, bulk, boxcar/hopper car; $97.64, bagged, in carloads or truck loads; $107.65, bagged, less than carload; all prices f.o.b. Trenton, freight equalized with nearest producing point.

DISTILLERS DRIED GRAINS

San Francisco: Demand fair; supply ample; solubles, $79, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; by truck, $52.50.

Louisville: Demand slow; trend steady to stronger; supply good; bourbon grains, light $48, sacked; dark $50, sacked; solubles $73, sacked. Reports indicate a $3 a ton rise in prices for May, when production will slow down.

Philadelphia: Demand slow; supply very light; trend unsettled; $60.

Boston: Demand good; supply short; dark, $61.

Buffalo: Demand fair; trend steady; supply fair-to-poor; $59, Boston.

Seattle: Demand fair; trend firm; supply limited; $69, delivered truck lots, sacked.

DRIED BEET PULP

Los Angeles: Demand slow; supply ample; trend lower; $43.80@44.90, new crop.

San Francisco: Demand good; supply fair; $42.50.

Ogden: Supply good; $41@46.

New Orleans: Demand fair; trend steady; supply adequate; $54@55, papers.

Milwaukee: Demand good; trend steady;

supply limited; $59, Chicago (plain); $61.50, Chicago (molasses).

Boston: Demand good; supply light; sacked, $61@62.

Buffalo: Demand fair; too scarce to quote.

Seattle: Demand good; trend firm; supply limited; $52, delivered carlots, sacked.

DRIED BUTTERMILK

Ogden: Supply good; $17.25 cwt., bulk.

New Orleans: Demand fair; trend steady; supply ample; $13@14 cwt., sacked.

San Francisco: Demand fair; supply ample; 12½¢ lb., sacked.

Chicago: Demand quiet; trend firm; supply fair; cwt., medium acid, $11.75@12.25, sacked; sweet cream, $11.75@12.25, sacked.

Louisville: Demand dull; trend firm; supply normal; $12@14 cwt., sacked.

Milwaukee: Demand fair; trend firm; supply limited; $13.75 cwt.

Los Angeles: Demand fair; supply adequate; trend unchanged; 13¾¢ lb., sacked.

Boston: Demand fair; supply short; 14¢ lb.

Buffalo: Demand good; trend steady; supply limited; $12.75 cwt.

DRIED CITRUS PULP

New Orleans: Demand fair; trend easy; supply normal; $32.50@35, f.o.b. Florida.

San Francisco: Demand and supply fair; $49, sacked.

Los Angeles: Demand slow; supply adequate; trend unchanged; orange pulp, $40; lemon pulp, $38.

Boston: Demand and supply steady; sacked, $54.

Buffalo: Demand fair-to-poor; supply adequate; trend steady; $35, sacked, f.o.b. Florida points.

DRIED SKIM MILK

Los Angeles: Demand fair; supply adequate; trend unchanged; 15¢ lb. less than ton lots, sacked; 14¾¢ lb. ton lots, sacked.

Milwaukee: Demand fair; trend firm; supply limited; $14.75 cwt.

Chicago: Demand and supply fair; trend firm; $11.75@12.25 cwt.

Cincinnati: Demand fair; trend steady; supply adequate; 13@14¢ lb., sacked.

Ogden: Supply good; $15.15, 100 lb. drum.

San Francisco: Demand and supply fair; 14½¢ lb., sacked.

New Orleans: Demand slow; supply ample; trend unchanged; $13.50@14 cwt.

Louisville: Demand slow; trend steady; supply good; $13@14 cwt., sacked.

Philadelphia: Demand slow; supply fair; $13.

Boston: Demand good; supply light; 13½¢ lb.

Buffalo: Demand fair; trend steady; supply ample; spray, $12.85 cwt.

Minneapolis: Demand good; supply tight; market firm at $13@13.25 cwt.

DRIED WHEY

Los Angeles: Demand fair; supply adequate; trend unchanged; $5.66 cwt., carloads, sacked; $5.98 cwt., l.c.l., sacked.

Ft. Worth: Demand fair; supply adequate; carlots, standard $5.75, sacked, delivered Ft. Worth; $6 ton lots, f.o.b. warehouse Ft. Worth.

Kansas City: Demand fair; trend steady; supply adequate; regular or partially delactosed $5.25 cwt., producers' points.

Chicago: Demand fair; trend firm; supply ample; $5.75@6 cwt., sacked.

New Orleans: Demand fair; trend easy; supply ample; $6@6.50 cwt.

Ogden: Supply good; $7 100 lb. bag.

San Francisco: Demand steady; supply good; $5.75 cwt., sacked.

Cincinnati: Demand fair; trend steady; supply adequate; $5.75 cwt., sacked.

Wichita: Demand light; supply ample; $6.50 cwt., sacked.

Louisville: Demand slow; supply ample; trend firm; $6@6.50 cwt., sacked.

Philadelphia: Demand slow; supply fair; $6.25.

Boston: Demand and supply steady; 5½¢ lb., f.o.b. shipping points.

Seattle: Demand steady; trend easy; supply good; $6.25 cwt., ex. warehouse.

Minneapolis: Demand good; supply ample; market steady; $5.40@5.45 cwt.

FEATHER MEAL (HYDROLYZED)

Los Angeles: Demand slow; supply adequate; trend unchanged; $1 per unit of protein, sacked.

Ft. Worth: Demand good; supply extremely scarce; 85-87% protein $82.50, sacked, f.o.b. trucks north Texas plants.

Boston: Demand good; supply tight; sacked, $80.

FISH MEAL

Milwaukee: Demand and supply fair; trend weaker; 60%, $135 sacked, Chicago.

Chicago: Demand quiet; trend easier; supply liberal; menhaden, East Coast $100, Gulf $100, menhaden scrap, East Coast $96, Gulf $96; Canadian herring meal, a unit of protein $1.65.

Ogden: Supply good; $1.70 per unit, f.o.b. Coast, 65% $115@117.

San Francisco: Demand slow; supply ample; $1.60 unit of protein, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; $145.

New Orleans: Demand dull; trend easy; supply ample; menhaden 60%, $103@105, sacked, f.o.b. Gulf; scrap $96@101, sacked, f.o.b. Gulf.

Louisville: Demand slow; trend steady; supply light; $145, nominal.

Los Angeles: Demand slow; trend firmer; lighter offerings; local production 60% protein, $1.50@1.55 unit, sacked.

Ft. Worth: Demand fair; supply sufficient; sacked: 65% protein Peruvian $107; 60% protein; Menhaden $108.50, delivered Ft. Worth.

Omaha: Demand and trend fair; supply ample; 60% menhaden, $120, f.o.b. Omaha.

Boston: Demand and supply steady; sacked, $110.

New York: Demand good; trend steady; supply satisfactory; 60% menhaden meal $108@110 sacked, f.o.b. shipping points.

Buffalo: Demand just fair; supply ample; trend steady; 60% protein, Menhaden, $120 ton, bulk; $125 sacked.

Seattle: Demand fair; trend steady; supply good; $1.75 per unit protein, delivered truck lots, sacked (Canadian production).

Minneapolis: Demand fair; supply adequate; downward trend; Gulf menhaden $114@118, sacked, truck lots, delivered Minneapolis, down $4@6 from last week; 70% herring, $1.65 per unit of protein, f.o.b. West Coast, down 5¢ unit; West Coast 60% blended $126@128, sacked, delivered Minneapolis, steady to off $2.

HAY

Wichita: Demand heavy; supply very scarce; prairie $30@32, alfalfa $32@34, baled.

Cincinnati: Demand fair; supply adequate; trend steady; No. 1 timothy $30; No. 1 red clover $38; alfalfa, first cutting $42; second cutting $52; alfalfa and clover mixed $39; wheat or oat straw $32.

Ogden: Supply good; $25, in the barn.

Louisville: Demand fair; trend steady; supply good; No. 1 hay, any variety $30@35, No. 2 $28@30; straw $18@20; feeding demand down as pastures improve.

Ft. Worth: Demand slow for alfalfa, practically nil for others; supply sufficient; carlots, baled, No. 1 alfalfa $46@48, No. 2 $44@46; No. 2 prairie, nominal $30@32; No. 2 Johnson grass, nominal $28@30, delivered Texas common points.

Los Angeles: Demand good; supply adequate; U.S. No. 1 $36@37, U.S. No. 2 leafy $34.50@35.50, U.S. No. 2 green $35@36, U.S. No. 2 $33@34.

Philadelphia: Demand slow; supply light; $24@25.

Boston: Demand and supply steady; No. 2 timothy $40@42.

Seattle: Demand good; trend easy; supply fair; alfalfa, $36, delivered truck lots, baled U.S. No. 2 green.

HOMINY FEED

Boston: Demand good; supply spotty; $54.

St. Louis: Demand slow; trend steady; supply ample; yellow, $41.

Memphis: Demand good; trend steady; supply tight; white $42.80, yellow $42.80.

Milwaukee: Demand good; trend and supply fair; $45.50 sacked, Chicago; $41 bulk, Chicago.

Louisville: Demand slow; supply light; trend steady; $51, sacked.

New Orleans: Demand fair; trend easy; supply ample; $50@51, sacked.

Chicago: Demand and supply fair; trend easier; $42.

Cincinnati: Demand poor; trend steady; supply adequate; $45.

Kansas City: Demand fair; trend steady; supply limited; white or yellow, $35@35.50.

Buffalo: Demand fair; supply fair-to-poor; trend steady; $53.50, Boston.

Seattle: Demand fair; trend firm; supply good; $50, delivered carlots.

LINSEED OIL MEAL

Ft. Worth: Demand slow; supply sufficient; 34% protein, solvent, $73, rail.

Milwaukee: Demand, trend and supply fair; expeller $76.50, Chicago; solvent $67.50, Chicago.

Chicago: Demand and supply fair; trend easier; Minneapolis basis, solvent, $56; expeller, $66.

Wichita: Demand fair; supply sufficient; 34% $80, sacked.

Cincinnati: Demand poor; trend steady; supply adequate; new process $57, old process $66, Minneapolis.

San Francisco: Demand fair; supply ample; $73.

New Orleans: Demand slow; trend easy; supply ample; $74.70 bulk, $79@79.70 sacked.

Louisville: Demand slow; trend easy; supply light; old process, $84.50 sacked; new process, $75 sacked; both down 50¢.

Los Angeles: Demand slow; supply adequate; trend unchanged; local production 31% protein, $79.

Philadelphia: Demand slow; supply very light; trend unsettled; 34%, $76 nominal.

Omaha: Demand slow; trend steady; supply ample; 34% solvent, $61.80; 32% old process, $71.80, Omaha basis.

Boston: Demand good; supply light; $75.

Kansas City: Demand slow; trend steady to easier; supply ample; solvent process, $55@56; old process, $66@66.50, Minneapolis.

Seattle: Demand fair; trend firm; supply limited; $85, delivered car loads, sacked, 31% protein (California).

Minneapolis: Demand good for expeller, fair for solvent; supplies ample; solvent down 50¢@$1.50 from last week to $56.50, April; expeller steady, nearby.

LIVER AND GLANDULAR MEAL

Omaha: Demand, trend and supply fair; 65%, $175 sacked, Omaha.

MALT SPROUTS

Milwaukee: Demand good; trend firm; supply limited; $33, bulk, Chicago; odd weight, $38.50, Chicago.

Chicago: Demand fair; trend steady; supply ample; $33.

Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $35.

New Orleans: Demand fair; trend easy; supply ample; $43.50@45, sacked.

Boston: Demand and supply limited; $48, sacked.

MEAT AND BONE MEAL

Boston: Demand good; supply adequate; $1.30 per protein unit; converted 50%, $77.50.

Omaha: Demand and supply good; trend strong; $82.50.

Wichita: Demand good; supply sufficient; 50%, $87.50 sacked, f.o.b. plant; 55%, no quotations, no offerings.

Cincinnati: Demand and supply fair; trend easy; 50% meat and bone scraps, $76, Cincinnati.

New Orleans: Demand slow; trend easy; supply ample; $85@90, sacked.

Ogden: Supply good; $77.50, 50% protein, in 100 lb. bags.

San Francisco: Demand fair; supply ample; $1.50 per unit of protein.

Chicago: Demand quiet; trend easier; supply fair; 50% protein, 100 lb. bags, $85.

Louisville: Demand dull; trend steady; supply good; $85@90, sacked.

St. Louis: Demand fair; trend easy; supply adequate; $78.

Ft. Worth: Demand good; weaker undertone; supply medium; 50%, $83@85, f.o.b. Ft. Worth.

Los Angeles: Demand good; trend firm; supply limited but adequate; 50% protein, $1.65 unit.

Kansas City: Demand slow; trend easy; supply ample; 50%, $77.50.

Buffalo: Demand just fair; trend lower; supply ample; 50% meat scraps, $77.50, bulk; $82.50, sacked.

Seattle: Demand good; trend firm; supply ample; $80 ex warehouse, sacked, 50% protein.

St. Paul: Demand off; supply ample; price dip continues, off $1@5 from last week at $77@84.

MILLFEEDS

Minneapolis: Market in slump in spite of lighter production by mills, but better positions expected to develop as feed business picks up; middlings slipped $2.50@5, compared with last week, to $37@38.50, sacked; bran off $2@3 to $41@42, sacked; red dog off $1@3 at $41@42, sacked.

Kansas City: Demand good; trend steady; supply ample; sacked bran, $35@35.50; bulk bran, $29.50@30; sacked shorts, $34.50@35; bulk shorts, $30.50@31; bulk middlings, $30@30.50.

Wichita: Demand poor; supply ample; bran $37.25, shorts $37.25, sacked; prices down $6.50, compared with preceding week.

Ft. Worth: Demand good, on the decline; offerings sufficient; bran $39, burlaps $43.50; gray shorts $40.50, burlaps $43.50; bulk middlings $39 delivered Texas common points; $6.50@6.70 lower on bran, $6.50 lower on shorts and $7.50 lower on midds., compared with previous week.

Chicago: Another big slash taken at millfeed price structure during week ended April 20. Standard bran and middlings off $6.50 from the preceding mid-week level; red dog lower too, but to a much more moderate degree; prices the first of the week as much as $1@1.50 lower on both bran and middlings than April 20; offerings very much on the burdensome side and demand extremely limited; per ton, carlots, bulk: Standard bran, $35.50; standard middlings, $36.50 and red dog, $44.

St. Louis: Sacked bran, $40.50; shorts, $40.50; bulk bran, $34.50; middlings, $34.50.

Louisville: Demand dull; trend very weak; supply heavy; offerings about $6.50 below last week; bran $48.10 sacked; mixed feed $48.60 sacked; shorts $49.60 sacked.

Memphis: Demand poor; trend down; supply ample; wheat bran, $36.70; gray shorts, $37.20; midds., $37.20.

Omaha: Demand fair; trend easy; supply ample; sacked bran, $36; sacked gray shorts, $36; bulk middlings, $31, all Omaha basis.

Cincinnati: Demand fair; trend lower; supply adequate; bran and middlings, $42.

Buffalo: Millfeeds had their best buying flurry in two weeks on April 19, but demand was only for nearby needs. Prices bottomed out, with one spokesman adding, "for one day." Action came from some of the larger mixers as a result of the two-week $10 decline in millfeeds. The sacked differential on bran and middlings widened out to $5.50 from $4.50 in an indication of country trade demand. The sacked differential on red dog held steady at $4.50. Bulk bran and middlings were off $3.50; sacked bran and middlings were down $2.50 from the preceding week. Red dog held unchanged. Quotations April 20: Bulk bran $38@38.50, sacked, $43.50@44; bulk middlings, $38.50@39, sacked, $44@44.50; bulk red dog, $48@49, sacked, $52@53.50.

Boston: Demand poor; supply ample; bran, $50.50; middlings, $51.50.

Philadelphia: Demand slow; supply fair; trend unsettled; bran $48.50, middlings $49.50, red dog $54.50.

New Orleans: Demand good; trend easy; supply ample; sacked bran, $51@53; bulk bran, $46@46.75; sacked shorts, $51@52; bulk shorts, $47@47.75; bulk midds., $46.50@46.75.

Ogden: Supply ample; to Utah and Idaho: Red bran and millrun, $40; midds., $45. To Denver: Red bran and millrun, $47; midds., $55. To California: Red bran and millrun, $47.50; midds., $53.50, f.o.b. San Francisco and Los Angeles.

Seattle: Demand fair; trend firm; supply limited; $42, delivered common transit points, carlots.

San Francisco: Demand slow; supply ample; midds. $47.75; red bran, $54.

Los Angeles: Standard millrun, $48.50@49, demand off; easier trend; supplies not too plentiful; red bran, $49@49.50; better demand; trend much weaker; ample supplies.

MINERAL FEED

Sioux City: 50 lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Wichita: Demand heavy; supply adequate; all-purpose with iodine 50 lb. blocks $97.50, 100 lb. bags $92.50, f.o.b. plant.

Ogden: Supply ample; $113 in 50 lb. blocks; $103, granular, 50-lb. bags.

San Francisco: Demand steady; supply good; all-purpose with iodine $70, sacked.

Ft. Worth: Demand poor; supply adequate; all-purpose granules $90, block $97; mineral phosphorus, 6% granules $106, block $113; cattle-sheep mineral, 7% phosphorus granules $100, block $107; hog mineral phosphorus, 3½% granules $87, phosphorus 2% $77 (all in 50 lb. paper bags).

Seattle: Demand fair; trend steady; supply good; $48 ex warehouse, sacked, for mixer mineral; $35 ex warehouse, sacked, all-purpose mineral.

MOLASSES

Ft. Worth: Demand fair; supply sufficient; blackstrap 10¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $23.80, seller's market price on date of shipment.

Memphis: Demand good; trend steady; supply ample; blackstrap, 8½¢ gal., tank car, f.o.b., New Orleans, and $21.80, delivered Memphis, truck.

New Orleans: Demand fair; trend easy; supply good; 8¾@9¢ gal. tank cars and trucks; 660-lb. customers' drums $6.92.

San Francisco: Demand and supply good; $19.75 ton, f.o.b. cars, Richmond, Cal.

Cincinnati: Demand fair; trend steady; supply adequate; 8½¢ gal., New Orleans.

Boston: Demand active; supply plentiful; 14¢ gal., in tank cars.

Milwaukee: Demand fair; supply ample; trend unchanged; blackstrap, 8¾¢ gal., f.o.b. New Orleans.

St. Louis: Demand slow; trend steady; supply ample; 8¾¢ gal., tank car, New Orleans.

Los Angeles: Demand good; trend steady; supply ample; $19.50, f.o.b. tank cars; $19.75, f.o.b. tank trucks.

Louisville: Demand slow; trend steady; supply fair; 8¾¢ gal. in tank car lots, f.o.b. New Orleans.

Kansas City: Demand slow; trend easy; supply ample; blackstrap 8¾¢ gal., f.o.b. tank car, New Orleans.

Buffalo: Demand and supply fair; trend steady; 14¢ gal., f.o.b. Albany.

New York: Demand fair; trend steady; supply good; 14¢ gal. Albany; 13¾¢ Baltimore and New York; $38, f.o.b. Buffalo.

Seattle: Demand fair; trend easy; supply good; $19.75, f.o.b. Seattle, tank truck lots.

Minneapolis: Light demand; good supply; off 50¢ from last week to $38, tank truck, delivered.

NIACIN

New York: 50% $1@1.20 lb.

OAT PRODUCTS

Cincinnati: Demand fair; trend steady; supply adequate; pulverized white oats, $49@54.

Chicago: Demand and supply fair; trend easier on reground, steady on others; reground oat feed, $22.50; No. 1 fine ground feeding oatmeal, $74; feeding rolled oats, $78.50@79.

Louisville: Demand slow; trend steady; supply normal; reground $25.80; rolled oats $54.80; feeding oatmeal $60.80; crimped white oats $47.80; pulverized white oats $53.80; all sacked.

Los Angeles: Demand fair; supply limited; trend unchanged; local production, pulverized, $69, sacked.

Memphis: Demand and supply light; trend steady; 2½% protein, reground oatfeed, $30.25.

Ft. Worth: Demand slow; supply sufficient; oat millfeed $48.70; reground $34.70, sacked, new jutes.

Philadelphia: Pulverized whites, demand slow, supply fair $52.50; domestic, demand slow, supply light, $32.30; Canadian demand slow, supply light, $33.50.

Boston: Demand fair; supply adequate; white pulverized, sacked, $58.50; reground oat feed, domestic, $35.50; Canadian, $32.

Seattle: Demand good; trend firm; supply fair; $58, delivered truck lots, 38 lb. or better.

Minneapolis: Although strong oat markets had indicated otherwise, oat products prices remained stable this week; feeding rolled $81, feeding oatmeal $70, pulverized $45@$46.50; reground oat feed $24@27, crimped $61, all sacked prices.

OYSTER SHELL

Cincinnati: Demand fair; trend steady; supply adequate; 80 lb. bags $23.85; 50 lb. bags $24.10; 25 lb. bags $26.35.

San Francisco: Demand fair; supply ample; local $15, eastern $26, sacked.

New Orleans: Demand and supply good; trend steady; $24@24.50, papers.

Louisville: Demand good; trend steady; supply normal; in 80 lb. paper $23.45, in 50 lb. paper $23.70, in 25 lb. paper $26.95.

Los Angeles: Demand fair; trend unchanged; supply ample; $15.40.

Boston: Demand and supply steady; in paper bags, $26.05.

Seattle: Demand and trend steady; supply good; eastern $36, delivered carlots, sacked.

PEANUT OIL MEAL

Milwaukee: Demand and supply fair; trend unchanged; 26% $45, sacked, Chicago; $41 bulk, Chicago.

PEAT MOSS

Chicago: Demand and supply fair; trend firm; standard 7½ cu. ft. bale, $3.80.

Cincinnati: Demand and supply good; truck loads $3.45, baled f.o.b. Cincinnati.

San Francisco: Demand and supply fair; $3.65 per bale.

Los Angeles: Demand good; trend steady; supply ample; Canadian 5.6 cu. ft. bales, $3.65.

Philadelphia: Demand slow; supply fair; $2.99, f.o.b. pier.

Boston: Demand and supply steady; $3.15 bale in carlots.

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SOYBEAN OIL MEAL

Los Angeles: Demand slow; trend weaker; increased offerings; $76.40.

Chicago: Demand for cash meal anything but brisk, lower price levels were in effect; offerings once again not really liberal, but with the erratic demand, they were too much for ready absorption without being reflected in the price structure; futures weaker too; per ton, carlots, Decatur basis: 44% protein, unrestricted billing $57, eastern trunk line, $52.50; 50% protein, unrestricted, $61, eastern trunk line, $56.50.

Cincinnati: Demand poor; trend lower; supply adequate; $55.50, Decatur.

San Francisco: Demand fair; supply ample; $76.40.

New Orleans: Demand slow; trend easy; supply ample; $69@69.50, sacked.

Boston: Demand slow; supply ample; 44%, $52.50; 50%, $56.50, both f.o.b. Decatur.

Louisville: Demand slow; trend strong; supply normal; $67.70, off 30¢, sacked.

Milwaukee: Demand, trend and supply fair; $59, Decatur.

St. Louis: Demand fair; trend easy; supply ample; 44%, $56.50.

Ft. Worth: Demand slow; supply sufficient; 44% $63.60@64 April, $64.60 May, $65.60 June-August; 50% protein $72.50 April, $73.50 May, $74.50 June-August.

Omaha: Demand slow; trend easy, supply ample: 44% $57.60, delivered Omaha.

Kansas City: Demand slow; trend steady to easy; supply ample; 44% solvent process $52.50@53, Decatur.

Seattle: Demand good; trend easy; supply ample; $77, delivered carlots.

Minneapolis: Demand slow; supply ample; 44% down $1@1.50 from last week to $47.50@48, Decatur; 50% down $1.50@2 to $52.50@53.

TANKAGE

Wichita: Demand good; supply sufficient; 60%, $87.50 sacked, f.o.b. plant.

Cincinnati: Demand good; trend steady; supply fair; 60% digester, $80, Cincinnati.

Chicago: Demand quiet; trend easier; supply ample; 60% protein, 100 lb. bags, $87.50.

New Orleans: Demand dull; supply good; trend steady; $85@90, sacked.

Louisville: Demand dull; trend firm; supply good; 60%, $85@90, sacked.

Ft. Worth: Demand fair; supply limited; 60% digester, $85, sacked, Ft. Worth.

Omaha: Demand and supply good; trend strong; $82.50.

St. Louis: Demand fair; trend easy; supply adequate; $80.

Kansas City: Demand slow; trend easy; supply ample; 60% digester, $77.50.

St. Paul: Demand off; supply ample; market continues downward trend; off $2@3 from last week at $80@82.

THREAT

(Continued from page 1)

there is no trace of the additive in the end food products.

Following are summaries of some of the talks:

MEDICATED FEEDS UNDER THE FOOD ADDITIVES AMENDMENT—The Delaney "cancer" clause in the federal food additives law is not consistent with the philosophy of the law itself, and will threaten future progress based on research, Attorney Adrien L. Ringuette, Abbott Laboratories, Chicago, said.

"While the food additives law was designed to permit the use of food additives at safe levels, the Delaney clause prohibits the use even of safe levels of any substance that can be made, directly or indirectly, to induce cancer in any animal at high levels or under special conditions," Mr. Ringuette said.

"The Delaney clause, clearly, departs from the philosophy of the food additives law," he told the group.

Mr. Ringuette said the public welfare is not served by abandoning scientific and technological progress which has given this nation the highest standard of living in the world.

Mr. Ringuette said the food additives law has two purposes:

- To protect consumer health by requiring manufacturers of food additives and food processors to pretest for safety any substance to be added to food.
- To advance food technology by permitting the use of food additives at safe levels.

The chief cost of the Delaney clause, Mr. Ringuette charged, "is the threat to future progress based on research.

"There is evidence that research projects have already been curtailed and that potential research projects are now being tabled in veterinary medicine."

The Delaney clause recently has prevented any further clearances of safe uses of two different drugs long employed as additives to animal feed, Mr. Ringuette charged. Both diethylstilbestrol and organic arsenical compounds have been demonstrated to be safe at the levels they are employed as additives to animal feed and have been approved as safe by the Food and Drug Administration, but they have been denied further clearance under the Delaney clause, the attorney said.

"Diethylstilbestrol cannot be made to cause cancer in most animals, however, and no cancer in humans has been found attributable to diethylstilbestrol despite its wide medical use in humans for 20 years encompassing hundreds of thousands of patients," he added.

Furthermore, Mr. Ringuette pointed out, when used in animal feeds, any detectable diethylstilbestrol residue is eliminated before the animals are marketed for food, so the drug would not enter the human system by this route.

Because certain inorganic arsenical compounds are considered by some to cause a condition which may lead to cancer, but only in certain cases and only when administered at high levels over a long period of time, no food additive regulation will be issued permitting any uses of any compound containing arsenic, including arsenicals which have never been shown to be capable of causing cancer, Mr. Ringuette said.

"Organic arsenicals have been used in human medicine since the beginning of the 20th century and in medicated animal feeds since 1951," he said. Residues of the drugs in eggs and tissues, furthermore, when used under recommended conditions, are in the same range as normal content of arsenic in such foods.

"The Delaney clause, clearly, departs from the philosophy of the food additives law," he charged. "Its standard of prejudgment reflects the views of some, but not all, cancer researchers — whose experience does not reach into the broader areas of public welfare — and who are impressed mostly with their lack of knowledge of the factors responsible for cancer incidence.

"Faced with such lack of knowledge, their remedy is to repudiate scientific judgment altogether. Yet, it is generally accepted that thresholds do exist for cancer-causing compounds as for other compounds, and that in doubtful cases, at least, safe tolerances can be set."

He said that the responsibility of the Congress in this situation seemed clear—the establishment of policy is the essence of the legislative function. "No administrative agency, subject as it is to many pressures, can consistently administer a law whose policies are in conflict," he declared.

"As written, the Delaney clause precludes scientific judgment, and frustrates the basic policy of the law," he said. "It is imperative that, to achieve the maximum well being of our nation, the Delaney clause must be eliminated or amended so as to permit the use of safe compounds.

"Scientific judgment has been entirely excluded, not only in the evaluation of safety, but also in the evaluation of whether or not these compounds are even capable of causing cancer."

The problem of restoring scientific judgment to the evaluation of food and drugs, while providing maximum public health protection is a legislative one, Mr. Ringuette contended.

"In my opinion," he said, "the problem is not basically the administration of the law. In the past, we have been able to work out problems of administrative interpretation with the Food and Drug Administration on a scientific basis, and we can probably continue to do so in the future."

CURRENT DEVELOPMENTS IN MEDICATED FEEDS AND LIVESTOCK MEDICATIONS — Dr. Charles A. Durbin, veterinary medical director for the Food and Drug Administration, in an "off-the-cuff" discussion, told the audience that "these are trying times, I know, for the drug manufacturer, the feed manufacturer, and for the enforcement officials. He stated his department's case forthrightly and asked his audience to realize that the "zero" tolerance regulation "doesn't mean the end of everything." He said that "zero tolerance and no tolerance" do not mean the same thing, pointing out the variations in assay methods and the practical limits of assay methods in determining "zero" tolerance.

Dr. Durbin quoted from the statement of Arthur Flemming, head of the Health, Education and Welfare Dept. in discussing the prospect of getting some relief from the restrictive interpretation or effect of the Delaney amendment. Mr. Flemming's statement was to the effect that the Delaney amendment should be modified to provide for the use of additives in livestock and poultry feeds if there is no trace of the additive in the edible meat, milk or poultry produced by the feed carrying the additive in question.

Dr. Durbin is of the opinion that the legislators who passed the Delaney amendment did not realize at the time the effect the legislation would have on commercial agricultural production.

He complimented the representatives of the drug and medicament manufacturers present for their "very good cooperation and understanding" during the past year.

RESEARCH, REGULATION AND REACTION — Criticism of the Delaney clause in the food additives amendment and in the manner in which it is administered was voiced by Dr. Earl L. Butz, dean of the School of Agriculture, Purdue University, Lafayette, Ind.

"The striking record of increased efficiency in U.S. agricultural production has been made possible only through the advances in research on a broad front," Dr. Butz said. "The use of chemicals is a principal reason for America's abundance of food and fiber.

"The controversial Delaney section, and particularly the philosophy under which it is administered, has cast a cloud over a substantial area of agricultural research and innovation," the educator said.

"We must stop tossing about the cancer scare in a loose and irresponsible manner," he said. "Let's replace hysteria with reason and fact." He pointed out that there must be no quarter for emotionalism and sensationalism in safeguarding our food supply, adding that "millions of consumers have drawn the inference that some food producers and processors are kind of a culprit trying to pull a fast one on the consumers."

Dr. Butz emphasized that research in the chemical and biological field is expensive, but that it also has been a major factor in the production of an abundant food supply at a low cost to consumers.

"Your industry needs always to make the point that research of this kind is conceived, initiated, executed and paid for by private enterprise, working under the American profit system. This kind of research is a very essential component of the total research complex in this country, both public and private," he concluded.

OUR PROBLEMS ARE MUTUAL —Stacey B. Randle, state chemist, New Jersey Agricultural Experiment Station, New Brunswick, reviewed the problems shared mutually by the control officials and the members of the AHI. Much of his address was devoted to citing the need for educating the city people about agriculture's problems.

"It is becoming increasingly difficult for those of us associated with agriculture to communicate with an urban society," he said. "Frequently we do not have the sympathy of those who control the media for mass communication.

"Some segments of this media are unaware of the agricultural problems and are unable, therefore, to speak an agricultural language. It would appear that in some instances the communication media may be more interested in a sensational story which will arouse the public rather than presenting a factual story."

He then cited several sensational "scare-type" stories which have appeared either in magazines, newspapers or books which would tend to persuade the public that they're slowly being poisoned by heartless manufacturers of insecticides, feed additives, etc.

"It may be that, by default, we have contributed to this situation and have made it easy for the crack-pot," Mr. Randle concluded.

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Santiago de Chile

AHI

(Continued from page 1)

a balance between feed grain output and livestock production. The demand for feed, he said, is relatively inelastic on a short-run basis.

The economist said that during the past 20 years approximately 10 million people have moved out of agricultural production and that this population shift had been brought about through developments in agricultural technology. This trend, he believes, will continue on a reduced scale through the 1960's.

Poultry Industry

Dr. J. Clyde Driggers, chairman of the poultry division at the University of Georgia, Athens, in a look-ahead at the poultry industry during the 1960's, said that the volume of poultry production will remain at a high level, percentage-wise. He said that he "looks for a very volatile price structure" later this year, mainly because of reduced chick placements.

Dr. Driggers made a pitch for allied industry support of consumer promotion to increase poultry consumption. This, he said, might help to maintain an economically healthy poultry industry.

More Commercial Feedlots

Expansion of commercial feedlot operations in the production of swine and beef was forecast by Bruce Russell, president, Farmers National Co., Omaha. Mr. Russell's firm specializes in agricultural management. He said that he believes the swine industry will become more integrated, but that the integration process will be much slower than it was for the poultry industry.

"But it is coming," he said. He commented that "60,000 farmers, each with 100 brood sows, could supply the market for pork now being supplied by more than two million hog raisers."

With regard to beef production, Mr. Russell said that this will become more and more commercial and that there will be an increase in the number of feedlots in the next few years.

"Narrow profit margins in beef production," he said, "will force many small feeders out of business in the coming five years."

The speaker favored the continuation of government programs for agriculture and he said that a soil conservation program seemed to him to be the best way out of the current dilemma. He said that, to be effective, from 70 to 80 million acres would have to be taken out of production. This, he estimated, could cost about $1 billion per year, in comparison with the more than $2 billion cost of the current control program.

AHI Award

Dr. Jacob Traum was the honored guest at the meeting. He was the recipient of the institute's "Distinguished Service Award." Dr. Traum, now on emeritus status at the University of California, devoted more than 55 years of fruitful work to the prevention and control of livestock diseases. He was presented with a handsome plaque and a check for $1,000. The presentation was made by Dr. Guy A. Railsback, president of the group.

Dr. Railsback, Cutter Laboratories, Berkeley, Cal., was reelected president. Other officers named include James E. McCabe, agricultural department, Merck & Co., Rahway, N.J., first vice president; Cliff D. Siverd, agricultural division, American Cyanamid Co., New York, second vice president, and Thomas B. Huff, American Serum Co., Sioux City, Iowa, treasurer. Dal Bruner was renamed executive secretary.

Summaries of talks follow:

DYNAMICS OF THE FEED INDUSTRY—PRESENT AND FUTURE—Extensive cooperation between the feed industry, the suppliers of animal health products and other feed additives, and other related interests was seen by Dr. J. L. Krider, vice president, Central Soya Co., Inc., and McMillen Feed Mills, Fort Wayne, Ind., as an essential ingredient in the formula that will accomplish greater efficiency for the feed industry.

He advised the Animal Health Institute conventioners to "continue your research to develop better and better products to promote a healthier more efficient animal agriculture in the future."

Relationships

The increasing importance of the working relationships which involve the feed industry, veterinarians, livestock and poultry producers and the government "places a greater responsibility on all involved in research," Dr. Krider said. And he observed, "It is becoming increasingly important that the suppliers of animal feed additives in their research determine not only the influence of a new chemical or drug on the rate and efficiency of production, but also to determine whether or not any is deposited in the edible tissue.

"After clearance is obtained from authorities, complete instructions and educational materials need to be prepared and used in selling the compounds to veterinarians, feed manufacturers, feed dealers and animal health product distributors."

He recommended that this "chain of educational reaction" be continued through proper labeling and instructions to livestock and poultry producers.

"Perhaps there has been some negligence in the past in this regard, but it should not be tolerated in the future," he stated.

Changes in agriculture, including producers' demands for new forms of feeds, more efficient feeds and new and better animal disease controls, have challenged the feed industry and other industries serving animal agriculture to keep up with or ahead of the times. And Dr. Krider believes the goals represented by this challenge cannot be attained without cooperation among all segments of animal agriculture.

The feed industry's future is challenging because, as Dr. Krider sees it:

• "In animal agriculture the important customers are becoming larger and fewer. . . . The average size of U.S. farms continues to increase. . . . The margin of profit per unit of product has narrowed so only the most efficient will remain in business.

• "Even with improvements in the nutrition, sanitation and health management of livestock and poultry which will contribute to further efficiency, we have a big job ahead of us." Dr. Krider noted that poultry producers and processors had 93 million pounds of poultry products condemned in federally inspected plants during 1959, and that estimated losses in swine due to internal parasites amount to about $277 million annually.

He posed this question: "Does this represent a challenge to your (animal health products) industry and our (the feed industry) to provide more effective animal health products, better feeds, controlled management and other products and services to minimize this tremendous loss so that this waste will not continue?"

• "By 1975, continuation of the present trend will project us to an industry tonnage of 65-70 million tons of manufactured feed annually."

• The percentage of manufactured feed moving in bulk is steadily increasing. "The percentage of bulk feed shipped in the U.S. was 37% in 1959. In some major feed manufacturing operations as much as 75-80% of all the feed moving out of the feed plant is bulk. This is especially true in heavy poultry producing regions.

• "In many cases, the increased feed volume in bulk will be distributed by larger and fewer feed dealers, as well as by feed companies on a direct basis. Although our company's progress has been through an aggressive dealer organization, and we believe this should continue, it is evident that many feed manufacturers in the industry are not taking this route."

• "Emphasis will be on efficiency in the design and construction of feed manufacturing plants. These should be designed and operated to produce about two tons of feed per man hour.

• "In many companies the use of electronic cumputers in the formulation of least-cost rations has become a useful technique and will probably become more important in the future.

• "The demands of farm customers for different forms of feeds, such as meal, pellets, cubes and crumbles, and their demands for various animal health additives, growth and production additives have made the job of servicing their requirements a very complex one.

• "The need for aggressive research in the area of meeting the demands of livestock and poultry producers cannot be over-emphasized. I have been told that as many as 10,000 new products have to be screened in order to find 3-5 products which will be commercially feasible and serve the needs of agriculture more effectively.

"It is certainly my hope that federal legislation will be modified so that research will be encouraged or certainly not stifled in the area of animal health products and feed additives."

Elaborating on his "research point," Dr. Krider gave this example of the value of feed additives in pork production:

"Conservatively, the use of antibiotics has resulted in an average of 5% feed saved with occasional savings as high as 15-16%. Using the low figure, or the average of 5% saving, means that nearly 2½ million tons of feed would be saved annually in producing a pig crop of 100 million head if all these animals were fed recommended levels of antibiotics.

"Other plus factors are 10% (average) faster gains. Furthermore, healthier pigs with lower mortality and lower morbidity, meaning better products for food consumers, have resulted."

He continued: "Although hundreds of feed additives are available to the feed industry, a single feed manufacturer probably uses between 40 and 80 feed additives in his modern feed formulas if he is manufacturing feed for livestock and poultry."

Dr. Krider said the feed industry "can look with pride to an industry growth which has been based on service, soundness and efficiency . . . and much of this progress can be credited to animal health products and feed additives."

YOUR CUSTOMERS IN THE 1960's—"In the 1960's, the stage appears to be set for fewer farms, fewer farmers and greater total agricultural production," Bruce Russell, president of the Farmers National Co., Omaha, said in a talk on the future market for animal health products.

He noted that small farms are rapidly being combined with other farms to make larger, more economical units. He foresees the trend to fewer farmers and bigger farms will continue through the 1960's at an accelerated rate. He says farm population, now about 11% of the total U.S. population, may be 7-8%, or even lower, by 1970.

He predicted continuing integration of hog production.

He also noted the trend toward larger dairy operations, cow pools and commercial feedlots and predicted continuation of these trends.

"You have heard a lot about the 'squeeze' on agriculture," he said. "It's not just conversation; it's real."

He said that farmers will have fewer dollars to spend and competition for those dollars will be keen, meaning those who supply farmers will have to work hard to get their share.

Although he said that the present farm program is "long overdue for an overhauling," he admitted it is pretty well agreed that "progressively lower support prices and removal of production controls would result in increased production, reduced farm income and general depressing effect on all farm-related business.

"The American public has too big a stake in agriculture to completely abandon government farm programs," he said.

He stressed the necessity of superior management. "Higher capital investment, higher operation costs and narrowing profit margins per unit of production will not tolerate the losses from annual diseases and slip-shod livestock management that have existed in the past," said Mr. Russell.

Mr. Russell said it may be necessary to educate the farmers to a "do it yourself" program in maintaining animal health. He said that "perhaps for too long we have expected the country veterinarians to maintain animal health."

He pointed out that there were 19,411 veterinarians in 1958. Only 4,400 of these were in large or domestic animal practice. "If livestock farmers made full use of the services of these men, they couldn't possibly handle the business," he said. "You can teach farmers to use many of your products safely and effectively."

ECONOMIC OUTLOOK FOR CATTLE AND HOG PRODUCERS IN THE 1960's—The outlook for cattle and hogs during the next 10 years is closely tied with the cyclical movement of these livestock species, said Francis A. Kutish, agricultural economist at Iowa State University. The future of the feed grain economy will have a big effect on livestock prices and numbers.

Since 1952, hog production has followed a 2-year-rise and 2-year-decline cycle, said Mr. Kutish. Hog numbers seem to be consistently governed by prices of the two preceding years.

"I expect to see a reduction in hog production during 1960, and perhaps in part of 1961." said Mr. Kutish. "By 1962, hog numbers will be increasing again, and the next period of distressed prices will probably occur in 1963."

The cattle cycle is less regular than the hog cycle, and much of what happens to cattle production in the current cycle will depend on what happens to cow numbers in the next year or two.

In the early stages of a cycle, production is much faster than slaughter. The first sharp buildup in slaughter comes when the big calf crop hits the packing plants. The second bulge in slaughter occurs when the cycle goes over the peak and liquidation begins.

If producers sell more cows and hold back fewer heifers in the next few years, then prices won't be forced as low when the present cycle hits the bottom.

So Mr. Kutish expects cattle prices to go down during the next few years, but if the expansion is controlled some, then the cycle can be smoothed out some and a drastic decline in prices might be avoided.

The big question concerning the livestock outlook centers on what happens to the feed grain economy, said Mr. Kutish. If the surplus grain isn't added to government stocks, the only place to use it is as a feed for livestock.

"The plain fact is this," he said. "We need a better balance in our feed grain production to bring it in line with the amount of livestock that can be sold at satisfactory prices. We must either reduce our feed grain and wheat production or expand our markets."

"Taken as a whole, an increase in supply of farm products of 1% will bring a 4% decline in price. Looking ahead, it would seem that our best solution lies in expanding demand.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
February 13	1,091	474	805	776	106	694	1,986	2,184
February 20	1,079	415	784	802	131	742	1,987	2,024
February 27	1,059	497	657	712	152	726	1,947	2,216
March 5	1,190	475	709	770	112	727	1,934	2,158
March 12	1,172	445	723	780	105	664	1,880	2,261
March 19	1,172	475	746	796	92	721	1,738	2,385
March 26	1,206	481	872	742	126	596	1,924	2,242
April 2	1,158	493	736	750	121	535	2,074	2,139
April 9	1,230	372	656	786	108	557	2,053	1,988
April 16	1,176	533	777	788	109	588	2,073	1,986

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
February 13	1,220	470	3,151	381	7,019	183	3,345	2,482
February 20	1,334	518	3,117	412	6,789	183	3,704	2,448
February 27	1,343	457	3,174	409	6,833	219	3,834	2,281
March 5	1,161	472	3,195	382	6,798	227	3,874	2,533
March 12	1,170	385	3,327	383	6,933	223	3,758	2,334
March 19	1,124	479	3,227	365	7,167	231	3,764	2,474
March 26	1,227	521	3,230	364	7,074	227	3,977	2,434
April 2	1,078	542	3,171	354	7,002	263	3,922	2,467
April 9	1,104	542	3,205	333	6,949	226	4,139	2,381
April 16	1,227	493	3,073	304	6,951	214	3,997	2,378

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1960	Total 22 areas 1959
February 13	3,874	389	2,333	385	207	1,131	34,706	33,265
February 20	3,807	391	2,290	302	256	1,117	34,583	33,798
February 27	3,855	390	2,262	288	252	1,066	34,645	34,534
March 5	3,781	381	2,144	355	218	1,159	34,748	35,416
March 12	3,712	398	2,324	368	227	1,137	34,709	34,330
March 19	3,730	419	2,213	378	275	1,118	35,089	34,645
March 26	3,716	435	2,122	347	322	1,224	35,409	37,098
April 2	3,753	427	2,032	288	275	1,192	34,772	37,424
April 9	3,677	493	2,046	303	270	1,273	34,691	37,076
April 16	3,720	479	2,109	283	311	1,185	34,754	36,850

This could be done through proper nutrition and expanded food consumption programs and bold new foreign disposal programs. Also, we can attempt to control production."

WHAT IS AHEAD FOR THE POULTRY INDUSTRY?—"The years of high profits in the poultry business are over," said Dr. J. Clyde Driggers, chairman of the poultry division of the University of Georgia, Athens. "Further advances will be based on increased efficiency of production and demand for the product."

Dr. Driggers said that this increased efficiency will be brought about through research which members of the Animal Health Institute are conducting privately and supporting through institutions such as state agricultural experiment stations.

Dr. Driggers foresees a 50% increase in broiler production by 1970 to 3 billion from the present 2 billion. "But prices probably will be only 17¢ per pound live weight or less based on the current price level," he maintained.

Egg production should be 70 billion or an increase of only about 20%, but egg prices will only be 32¢ per dozen or less, he said. "Contract or integrated farming should continue to expand as credit is available," he said. "However, this credit will be used more prudently."

THE LEGISLATIVE ROAD AHEAD—"Commercial agriculture will continue to progress in spite of political obstacles thrown up in its way."

That was the conclusion of Walter B. Garver, manager of the agricultural department, U.S. Chamber of Commerce. Mr. Garver said that there were still a number of men in Congress who served as architects for the old Triple-A concept of an agricultural program. And he said, too, that there's a lot of support amongst the congressmen for the two-price plan for agricultural commodities.

Price support programs, Mr. Garver said, are not effective. This country has had price support programs for wheat for many, many years, he said, "and the wheat picture today is one of chaos." He said that, in his view, an agricultural control program must be extended to all crops. He took a dim view of licensing of production because, he felt, it would lead to gray—or black—marketing practices.

Mr. Garver didn't hold out much hope for the enactment of any effective agricultural legislation by this session of Congress.

DISEASE ERADICATION PROBLEMS FOR THE 60's—The role of biological research in eradication and control of livestock and poultry diseases was reviewed in detail by Dr. R. J. Anderson, director of the disease eradication branch of the Agricultural Research Service, USDA. He said that by 1974 this country's cattle herds should be completely free from brucellosis, and tuberculosis could be eradicated by the use of a crash program.

A more stringent inspection procedure is in prospect for the control of anaplasmosis, Dr. Anderson said. With regard to hog cholera, he said that complete eradication of this disease was possible within the next 10 years.

Dr. Anderson told the biologists present that "new and better controls are needed for the control of cattle grubs" and he cited the success that has been obtained with the use of systemics. He also called their attention to the value of an entomological approach to the control of insects and told of the success that had been registered with combatting screw worm by sterilization of the male.

THE NEW VETERINARIAN FOR THE 60's—"Some changes are taking place in the field of veterinary medicine," said Erskine V. Morse, associate director of the Veterinary Medicine Research Institute at Iowa State University. "And in the next 10 years, we'll need 30,000 more veterinarians than we now have."

Dr. Morse breaks down the professional employment areas as follows: Rural practice, 51%; small animal or pets, 12%; teaching and research, 4%; federal, state and municipal, 14%; armed forces, 4%; private industry, 2%; miscellaneous, 8%, and retired 5%.

Here are some of the changes that are occurring, according to Dr. Morse. In 1950, 37% of the gross veterinary practice income came from pet practices. In 1955, the percentage was 45%, and it is expected to go over 50% during the 1960's.

The small animal practitioner is becoming increasingly important. At the same time, the large animal practitioner, who also treats some pets, will continue to be a vital part of the livestock industry.

Dr. Morse said that the poultry veterinary practice will become a specialty in the 1960's. In areas where broilers and turkeys are mass produced, a consultation or retainer type contract appears to be most desirable for both the veterinarian and the producers.

"The trend toward mass production has in no way lessened the need for veterinarians," he reported.

"In addition, the future will produce more research and public health veterinarians, and more demand for veterinarians in the Armed Forces. We hope the universities will solve the problem we have regarding the shortage of graduating veterinarians."

PENB

(Continued from page 6)

to represent turkey interests, three elected to represent broiler and chicken interests, six elected to represent allied industry interests and six elected to represent poultry interests at large. Directors serve for a term of three years.

Directors

Directors elected for a three-year term expiring April, 1963, are: Sam Bush, chairman, Florida Egg Commission, Newport Ritchie, Fla.; Carroll Eiler, Eiler Poultry Farms, Warsaw, Ind.; Chester B. Franz, president, Chester B. Franz Co., St. Louis, Mo.; Arthur C. Kimber, Kimber Farms, Inc., Niles, Cal.; Monroe Babcock, Babcock Poultry Farm, Inc., Ithaca, N.Y.; John Randolph, Corn Belt Hatcheries, Hope, Ark.; Clement Thurnbeck, Thurnbeck Farms, Forest Lake, Minn.; Morris G. Smith, Dixie Lee Turkey Farm, Ellicott City, Md.; Dr. L. A. Wilhelm, Quaker Oats, Libertyville, Ill.; Everett T. Conaway, Barker Equipment Co., Seaford, Del.; Stacy Cole, American Farm Bureau Federation, West Swanzey, N.H., and William Diamond, American Feed Manufacturers Assn., Chicago, Ill.

Two vacancies on the board of directors due to resignations were filled: John Copenhaver, Elizabethtown, Pa., for eggs, and Harold Williams, Institute of American Poultry Industries, Chicago, Ill., director-at-large, both men to complete two year terms.

EGG USE

(Continued from page 6)

assure a uniform high quality product.

"Cooperation unlimited: Starting with a few hundred egg producers we now have over 120,000 investing 1¢ per case to expand research, education and promotion of their products. Turkey and broiler people had previously pledged support.

"New generation a threat: The 'hustle and bustle' of our 'automated' way of life demands that our poultry products be ready-to-eat in more convenient forms. Tomorrow's generation will demand even greater service in the forms of convenience.

"Time for action: We must 'roll up our sleeves' and have the courage to stand up and let our 'dollars and deeds' speak for what we believe. To surrender to failure will further guarantee the loss of our poultry product markets to competitive foods."

Cornerstones

The "cornerstones" which are the foundation for PENB's research, education and promotion efforts are:

Men: "We have strengthened our PENB technical staff and will expand it further."

Money: "Income for each of the past 12 months has exceeded the corresponding month a year ago. Our goal is $1 million by Dec. 31, 1961."

Management: "We are constantly striving to develop a more sound business structure with emphasis on efficiency and the return on the dollar invested."

New products: "The enthusiastic support of the research people in the U.S. Department of Agriculture, colleges and industry is most encouraging."

Quality: "Universal emphasis on quality will continue to give the consumer a better egg, turkey and broiler."

Charles B. Shuman, president, American Farm Bureau Federation, complimentad the nation's poultrymen for resisting the temptation to turn to the government for fixed prices and production quotas. "The poultrymen's faith in the market price system has been proved sound by the current improvement in the egg market," he said.

Production and marketing contracts, widely used in the poultry industry, offer producers a tool which may be useful in increasing bargaining power as well as tailoring production to market needs, he said.

Dr. Kenneth Laurent, general manager, Marbut Milling Co., Augusta, Ga., believes that if all the apparent reasons for the declining demand for eggs were analyzed, the one that would stand out as most important would be the consumer's changing breakfast habits.

He said it was time for the poultry industry to show the housewife easier ways to prepare eggs, to emphasize the importance of breakfast to the well-being of children and to show why eggs are basic to good nutrition.

Suggestions for PENB to follow in distributing egg promotion information to various media were made by Miss Dorothy Brainerd, food editor, St. Louis Post-Dispatch. Menu ideas, interesting ways to serve convenience foods and food news in general were said to be popular among newspaper and magazine readers, radio listeners and TV watchers.

Martin D. Garber, director, food distribution division, U.S. Department of Agriculture, called the attention of the group to the growing market for poultry and poultry products formed by the school lunch program. He said food sales in the program, which involves 60,000 schools, amounts to more than $3 million daily.

He recommended that members of the egg trade know state directors of the school lunch program better to capitalize on the market.

Referring to the "food fad" idea that eggs should be avoided to prevent heart disease—a foe continually battled by the poultry industry—Dr. L. G. Maison, L. G. Maison Co., professional advertising agency, said much research has yet to be done on the subject, but emphasized that because a physician may advise a patient with a particular ailment to discontinue egg consumption, it does not follow that the advice is intended for everyone.

Dr. Maison said an average egg contains .234 gm. of cholesterol, "about twice as much as the well-marbled beef America likes so well. But we must consider how meat is eaten in comparison with eggs.

"The classical American breakfast is two eggs. The average amount of meat eaten per person per day is at least 12 ounces, or 340 gm., vs. the 100 gm. in two eggs. Even if you add a third egg per day per person for use in cooking, the ratio is still very much to the advantage of the egg."

Lloyd H. Geil, PENB general manager, said one of the aims of the organization is to launch a positive program to combat the cholesterol "scare" and others.

PENB Objectives

PENB's 1960 research, consumer information and promotion program to stimulate consumer demand for eggs has the theme of "Eggs Around the Clock."

Research objectives include: To determine new food values in eggs, to develop new uses for eggs, to provide direction in developing new egg products, to create and test egg recipes for home and mass feeding use and to assemble and make available findings from research on eggs to handle inquiries and to prepare copy for use in stores, booklets, folders, advertising and merchandising pieces.

The consumer information phase of the program includes material for homemakers, schools, professional people and institutions and restaurants.

The two major points of the program's membership relations phase are: To "feed back" to investors facts and figures on how their money is being used to create demand for eggs and to make personal contacts with industry leaders and appear on convention programs as often as possible to keep industry informed on PENB activity.

MARKETS

(Continued from page 2)

Ohio Valley

With clear warm weather continuing this week in the Ohio Valley, farmers were spending long hours in fields in efforts to offset the delay in plowing and planting brought about by the cold and snowy weather in March. While it had been thought earlier that the unusually late spring would adversely effect this year's production of corn and wheat, it now appears more likely that the bumper harvests of recent years again will be produced.

The one serious cloud of current concern is the lack of rainfall, which was an inch below normal for March and four inches below normal for the year to date. As several radio commentators have remarked, "This is hard to believe, in view of the deep snow storms that blanketed the entire valley area during March, but it now is evident that the ground was so frozen that the melting snow ran off before there was a thaw that would have enabled the moisture to penetrate the soil."

Meanwhile, with farmers making every effort to catch up with their spring work, the fattening of farm animals is being neglected, and most feed manufacturers have been forced to curtail production by operating well below 40 hours weekly.

Market prices for all types of farm animals were unchanged to lower at stockyards and wholesale markets this week.

Pacific Northwest

Formula feed trading throughout Oregon, Washington and Idaho appeared slower during the week, but movement from mills on earlier orders was reportedly maintained. Various types of poultry feeds appeared to face the broadest demand, but there were indications that dairy and cattle feeders were still using large portions of grains and concentrates in their operation.

Pacific northwest feed ingredient prices this week turned lower under rather quiet trading, with the demand for feedstuffs slackening, while offerings of some principal items were reportedly difficult to place.

Feeders and mixers limited purchases to scattered cars of the main ingredients on a hand-to-mouth basis. Good grazing for livestock and dairy herds was provided by grass pastures and feed on lower ranges.

Demand for forward shipment feeds appeared very dull as the week closed, with all classes of buyers in a waiting mood in anticipation of further market developments.

Soybean meal prices continued to decline as much as $2 ton, while linseed meal listings were $1.50 ton lower at the close, and dehydrated alfalfa meal was adjusted $1 down on a new crop basis.

Whole feeding grains also weakened, with corn and milo prices averaging 50¢ lower, but oats values were unchanged and barley gained 50¢ ton in slow trading.

Pacific northwest alfalfa hay trading was practically at a stand-still during the week. The demand was narrow and confined to scattered lots on a fill-in basis. No. 2 green alfalfa was nominally steady to weak at $35 @38 a ton, baled, delivered to principal Portland and Seattle feeding sections.

These prices are unchanged to as much as $2 ton lower for the week.

CATTLE FIRM FORMED

MESA, ARIZ.—Your & Mine Cattle Co. has filed articles of incorporation, listing $5 million capitalization to carry on a feedlot operation along with farming, dairying, etc. Incorporators-directors are Robert F. Anderson, Mesa, president; Beverly M. Anderson, secretary, and M. Ray Sherwood, vice president.

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Oilseed Meal Futures Prices Irregular

MEMPHIS, TENN.—Oilseed meal futures prices closed irregular April 19, compared with one week earlier, on the Memphis Board of Trade.

Soybean oil meal had a weaker tone during most of the period after a mixed feed business upturn had brought in some buying for nearby and forward months.

On April 19, the market received a boost on reports of shutdowns by plants. This followed profit-taking that had trimmed some of the gains made from the prior buying.

Cottonseed oil meal has been very quiet. This developed as the result of warming weather and forward trade buying was quite small. Buying continues only for immediate needs and prices are still under pressure. The cottonseed oil meal futures board was dealt a loss April 19 when these prices were altered to bring them better in line with cash bids.

Mixed feed business was reported to be steady, with some anticipation of a better tone during May, particularly from the broiler industry.

Trading for the week, which was shortened by a Good Friday holiday, amounted to 3,900 tons of unrestricted soybean oil meal and 1,200 tons of bulk cottonseed oil meal.

Memphis basis soybean oil meal closed April 19 50¢@$1 ton lower than on April 12, unrestricted soybean oil meal unchanged to 45¢ higher and bulk cottonseed oil meal 25¢@ $1 lower.

Campaign Planned to Boost Egg Consumption

TRENTON, N.J.—The New Jersey Poultry Products Promotion Council will sponsor a luncheon at the Hotel Stacy-Trent in Trenton April 28 in a move to promote egg consumption. Food publicists are invited to the luncheon.

A specific purpose of the promotional affair is to change the term "hard-boiled" eggs to "hard-cooked" eggs. "Hard-cooked" eggs will be passed out to the public by Trenton Junior College coeds. In continuing the promotional effort throughout May, the New Jersey Department of Agriculture "Farmmobile," a traveling display of New Jersey farm products, will tour the state showing 29 different ways to serve eggs.

Hess & Clark, Inc., Ashland, Ohio, will help with the campaign.

Location Sought for Georgia Poultry Lab

GAINESVILLE, GA.—While there has been discussion for some time to have the Georgia Poultry Laboratory in the Gainesville area, the location issue is still undecided.

The Georgia Feed Dealers Assn. has gone on record as opposing building the laboratory any distance from Gainesville.

At a meeting presided over by Eldo Grogan, association president, a resolution was passed opposing the selection of a site in the Oakwood section. A tract of land involving about 15 acres has been considered there. The resolution requests that the location be nearer the center of poultry activities. Otherwise, it was stated, small dealers will be put out of business.

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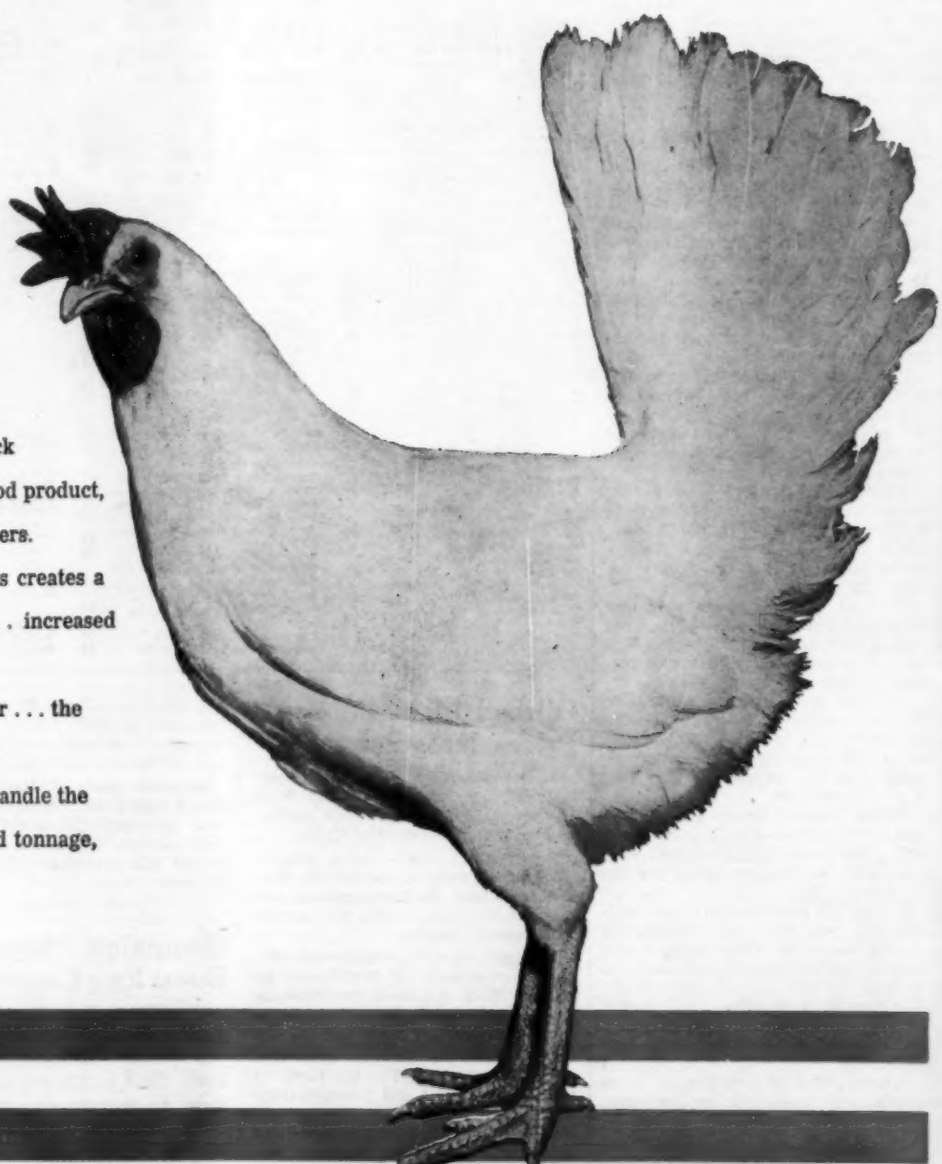

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